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LOBKOVIC PALACE

Prague—As a City of the Baroque

PART III.

By SELWYN BRINTON, M.A.

IN a lecture delivered in December last by Mrs. Arthur Strong, LL.D., Lit.D., F.S.A., on the subject of the "Baroque Art of the Counter-Reformation, and Bernini's Work on St. Peter's Rome," the Assistant Director of the British School at Rome pointed out that, while barely a hundred years after Bernini's death his art had begun to be discredited by the neo-classicists, and soon became anathema to the leaders of the romantic movement and the didactic school which had its exponent in Ruskin, in our own days a sounder knowledge of history and a sounder perception of what was great and permanent in the laws of art and architecture were rapidly helping to dispel these prejudices.

In approaching my subject here, in which I have to treat the baroque city of Prague as distinct from that wonderful mediæval city which has been before us in the two preceding articles of this series, I have quoted these words of Mrs. Arthur Strong—from which she went on to allude to the good work being done now by English critics and architects towards the study of Bernini's work in Rome, with which she included in very kind terms a set of papers on the Baroque which I had contributed to "The Builder" some few years ago—because they seemed to me to express most justly the attitude of the most advanced modern thought among architects and others towards the whole baroque movement. While fully and willingly admitting the faults of that movement, which justly drew down the vials of wrath of John Ruskin and his contemporaries, we have come to realize that the same movement had great merits, that it was itself a necessary reaction from the Academic Classicism of the followers of Palladio—that in a word it takes it place—and that, too, an important place—in the story of architecture.

In my own papers above mentioned on the Baroque I took Gian Lorenzo Bernini as the protagonist of

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the movement, because that marvellous artistic genius, at once a sculptor of the highest order and a very great architect, within his life in Rome, a city which he may be almost said to have recreated, was the center and focus of the new movement—a movement which externalized the Counter-Reformation, and was throughout, as Sir Banister Fletcher points

CHURCH OF ST. STRAHOV

out, connected with the Jesuits in its progress, adopted by them for its essentially modern character, and is to be studied architecturally in the churches of that order in Italy and through the rest of Europe.

Bernini's dates are given by the writer just quoted as 1589-1680, and those of two other leaders of the movement, Carlo Maderna, as 1556-1639, and Borromini, Bernini's rival at Rome, as 1599-1667; the date of the battle of the White Mountain, one of the great landmarks in the history of Prague and Bohemia, which invoked the suppression of Protestantism and the final triumph of the Catholic party in that country, was in the close of 1620, and the cruel executions of the Protestant leaders took place in the market place of Prague in June of 1621. I mention these dates to show that the change of political and religious power in Prague took place just when the influence of the Company of Jesus, with Baroque architecture and sculpture as its handmaid was at its height; and very naturally the Jesuits, when they became dominant in the ancient city, commenced altering and remoulding its architectural side in the churches, and incidentally also its civic architecture. Even from the purely art side that a certain amount of harm was done seems undeniable; anything more blatantly assertive, more vulgar, more lacking in repose or dignity than the interior of the old Hussite church called the Tyn church as it was left by them can hardly be imagined. They seem even to have removed the fine façade built by Podebrad, in which that King's statue pointed with his sword to a chalice on the ground that this was an "Utraquist" emblem. This was done in 1623, two years after the executions, when they even removed the bells of the church because they had been known as "Huss" and "Hieronymus."

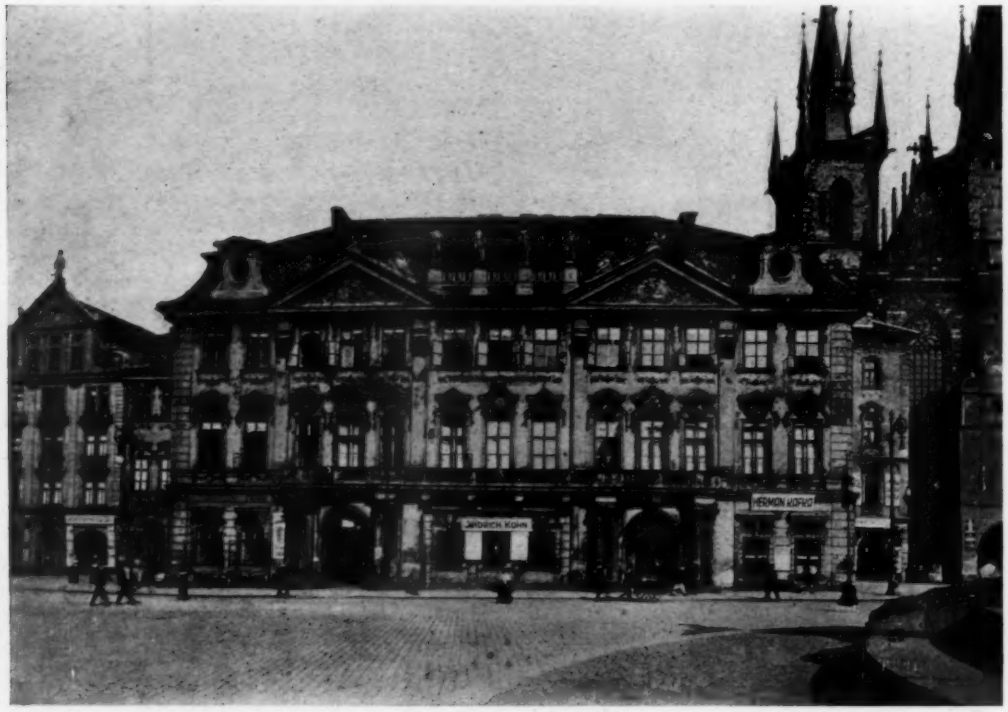
On the other hand they were responsible at this very time or soon after for some buildings which Prague could ill spare. The fine church of St. Nicholas, built in the seventeenth century under their in-

STATUE ON CHARLES IV BRIDGE

OLD PALACE

fluence, on the Malostranske Namesti, is an example; and the old monastery of the Praemonstratensians at the extremity of Mala Strana, which has the name of Strahov (from "straz," a guard) as in old days it was a guard to that entrance of the city, though it had been founded as early as 1142, in its present structure was rebuilt by Italian architects during this same seventeenth century, when its wonderful library, which is most rich in "incunabula," in Oriental manuscript and early printed bibles, must have been brought together and its fine interior designed and covered with paintings, while probably the choice little collection of pictures dates also from this time. Here, too, may be mentioned another monastery, that of the Capuchins on the Loretto Place, with the adjoining church of St. Mary, founded by one of the Lobkovic family, Princess Catherine, who have still their palace in Prague, its chapel of the Santa Casa and rich treasury owes much to the art of the rococo. Even the famous bridge of Charles IV, with its mediæval towers, was adorned under this new influence with groups of statuary, which recall to our mind those which Bernini had set at this very period upon the Bridge of Santo Angelo at Rome; the influence of this new art came, in fact, to permeate the whole city, so that it would be no exaggeration even now to describe Prague as a City of the Baroque.

Especially is this the case in civil architecture, and it is just here that this architecture of the seventeenth century, adapting itself to its surroundings, and losing something of its original Italian character, becomes for us in this city of extraordinary interest. Walking down, as I did one day last Summer at Prague, from the old fortress Palace of Hradcany to the Jesuit church of St. Nicholas, I passed on the steep descent through a street of which quite two-thirds of the houses, in some cases almost palaces, were absolutely baroque of this period, but with a variety of design, a richness of fancy and invention which was really astonishing. The Catholic Revival in these towns of central Europe and southern Germany, in such cities as Würzburg or Prague has an architectural development which is of exceptional interest, and which would merit more careful analysis than is possible within the limits of a single article. What I hope, however, here, is that, through the excellent set of illustrations of this side of the architecture of Prague which have been kindly placed at my disposal by friends in that city, I may give my readers some idea of this richness, this exuberance of inventive detail in her churches, palaces, sculpture and civic buildings of this time. For this Baroque, with



KINSKY PALACE

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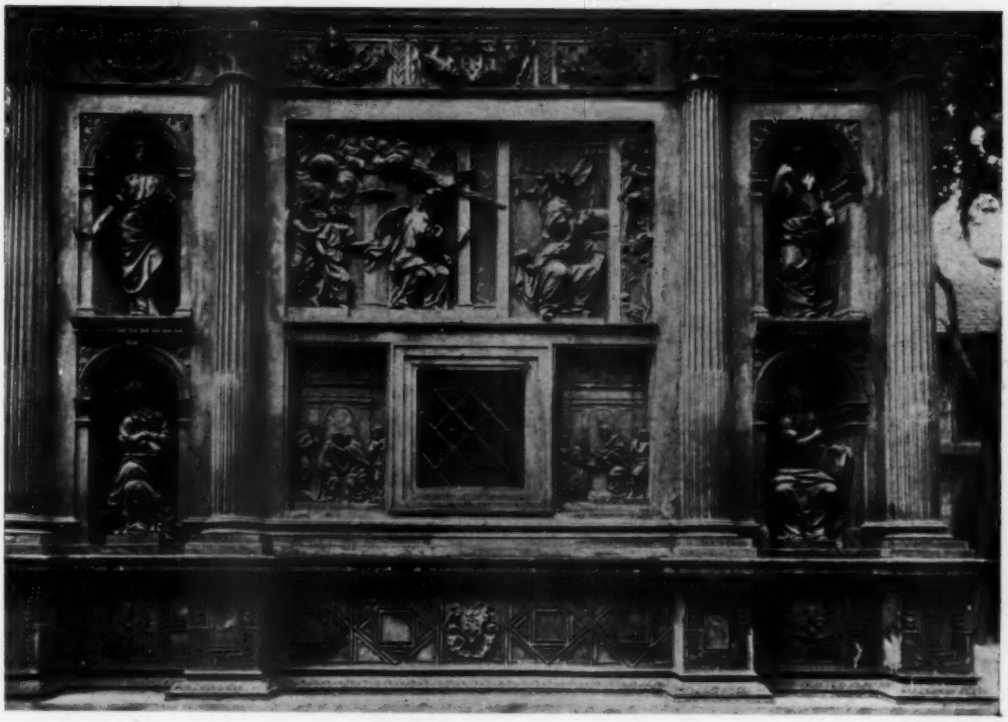

DETAIL, LORETA MONASTERY

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CZERNIN PALACE

CHURCH OF THE KNIGHTS OF THE CROSS

all its demerits, was an escape—an escape from the hard academic rule of form into the world of emotion, of individual caprice and fancy. It was the triumph of the curve over the straight line, of the human element over the weight of accumulated tradition.

STAIRCASE, OLD PALACE

Ancient San Francisco is Unearthed

Workmen Find Relics of Olden Days

Under the sidewalks of San Francisco lies a world of less tragic origin than the ruined city of Pompeii, but one also filled with relics of forgotten years. Less than twenty feet below the seemingly rock-founded streets, the rising and falling tides of the bay still seep in, and old ships lie there imbedded in the mud and silt as they have lain for seventy years—since inlets from the bay ceased to flow over that portion of the bay now intersected by Sansome and Sacramento streets.

Workmen uncovered innumerable small articles of ancient San Francisco.

Several weeks ago the hulk of the old prison ship Euphemia was uncovered on this same site, buried twenty feet below the sidewalk, and recently excavations of an additional ten feet brought to view an assortment of vases, jugs and other ornaments, large hand-made spikes of cast bronze and hundreds of smaller spikes, all of which have withstood the erosion of time for almost a century below the city's streets.

Beneath the foundations of an old wall on Commercial street the workmen also unearthed several score of small clay pipes, each bowl carved into the shape of a man's head, and many of them as perfect and unmarred as the day when they were made. They are thought to have been the property of early Mexican settlers in that vicinity.

All of these discoveries are not only of romantic and historical interest, but are helpful also in making it possible for accurate determination as to the changing street levels of the city.

XUM

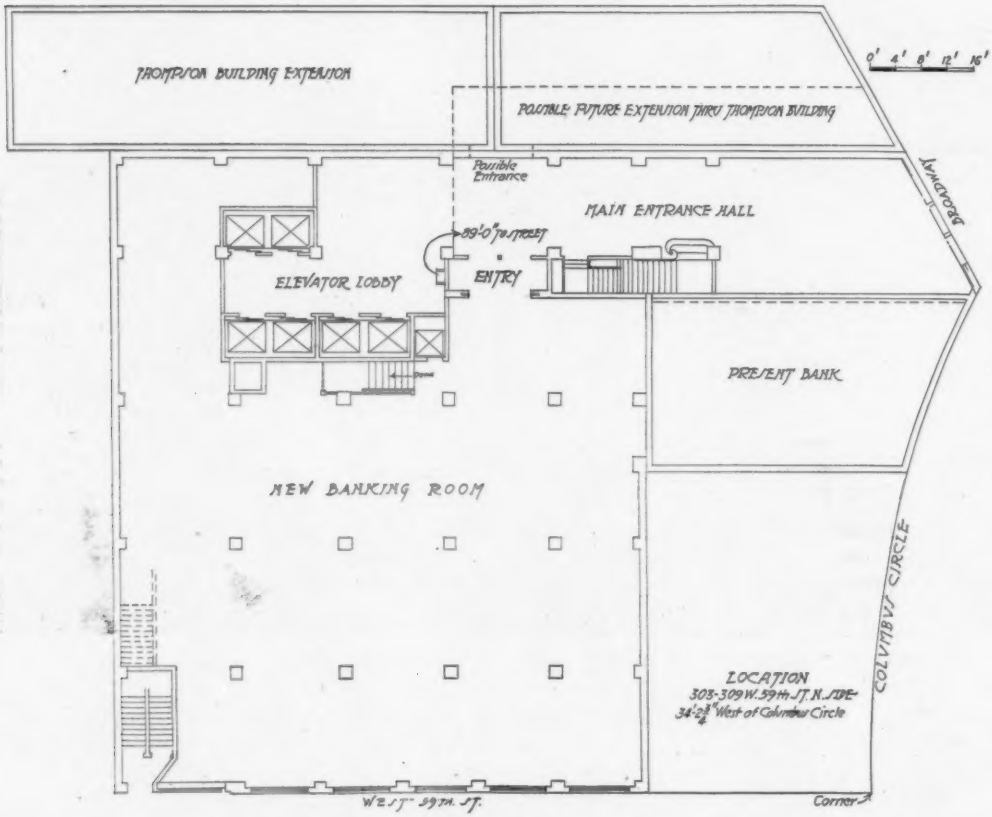
The Gotham National Bank Building

SOMMERFELD & STECKLER, *Architects*—KENNETH MURCHISON, *Consulting Architect*

NEW YORK'S civic center is slowly moving northward.

As short a while as twenty-five years ago Fourteenth St. and Broadway marked the center of the city's activities. Ten years later the northward movement had pushed the center to Twenty-third St., where it remained for about fifteen years. The next logical northward movement would appear to stop at Thirty-fourth St., but this was essentially a shopping district. It was for that reason that Times Square, at Forty-second St., stands today as the civic center of New York City.

But Times Square finds itself in danger of being supplanted by Columbus Circle, at Fifty-ninth St. and Broadway. And the Gotham National Bank Building is one of the proofs of the ceaseless northward surge of the business section of the city. This building, taken together with the United States Rubber Company's home, and the tall structure of the Fisk Tire Co. may be said to mark the possible nucleus for a new civic center for New York, and it may not be amiss to think of Columbus Circle as the "Times Square" of the near future.

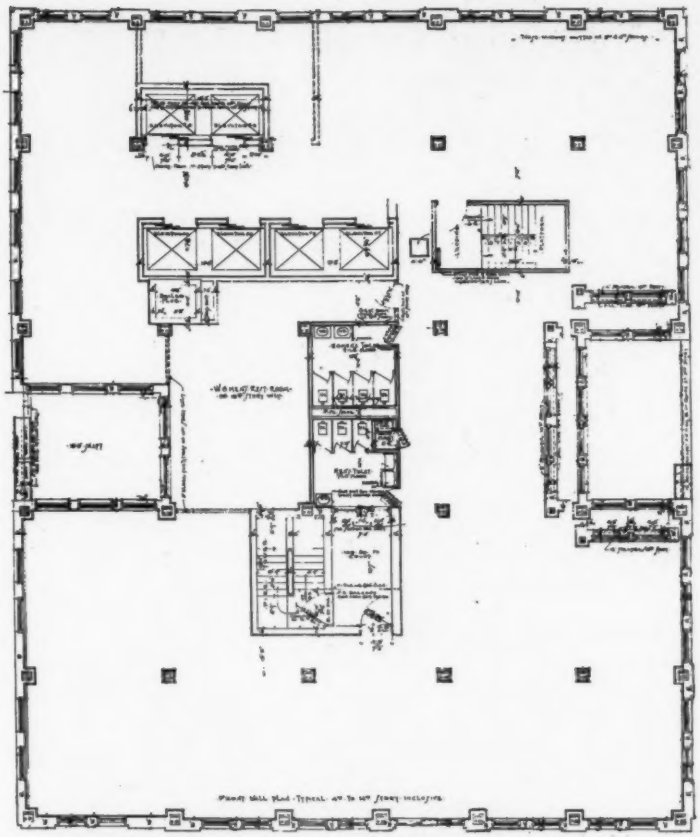


PLAN SHOWING LOCATION OF BUILDING ON SITE

If a building is placed not more than a 100 feet from the intersection formed by 59th Street and Columbus Circle, on a 59th Street, moderate-priced plot, its height is governed, not by the 59th Street regulation, but by the Columbus Circle regulation.

The keynote of the whole structure is summed up in a statement by one of the architects.

"The bank wanted a building which would produce Broadway revenue for renting space, which would cost them a 59th St. price for the plot, and



FOURTH TO FOURTEENTH FLOOR PLAN INCLUSIVE

which would efficiently house their banking business."

It is a well-known fact that buildings with Broadway frontage produce high rent-revenues, and the architects in this case have succeeded in getting such revenue by giving a Broadway entrance (where the cost of ground is very high) to a building which stands on a 59th St. plot (where the cost of ground is less expensive.

The selection of the plot on 59th St. killed the proverbial two birds with one stone, and illustrate rather strikingly how architects in some instances, may produce high-revenue buildings at moderate cost under the Zone Act of New York City. Columbus Circle is what is known as a two times district. If a building is placed (as is this one) not more than 100 feet from the intersection formed by 59th St. and Columbus Circle, on a 59th St., moderate priced plot, its height is governed, not by the 59th St. regulation (which would be 90 feet) but by the Columbus Circle regulation (which permits a 200-foot unbroken height, without any setbacks up to the 18th story). The obvious advantage in revenue to the owners of the building is readily appreciated.

The physical condition of the lot illustrates another point of interest to those architects who may have to deal with zoning regulation. The lot to the rear is so located that the rear of the lot upon which the bank building stands comes to the side and not the back, of that lot. The bank building lot is, therefore, "back to side" with respect to the lot on its rear, and not "back to back." This little point eliminated a 40-foot yard the entire height of the building. The very obvious advantage of a 40-foot depth for 18 stories is readily appreciated; and yet it is a matter which only a very careful study and knowledge of existing building regulations would make obvious.

From the 18th to the 24th story there are a series of three setbacks of two stories each and one of one story, as shown in the reproduction of the rendering. These setbacks were treated as two bay windows with ends splayed, so as to avoid the ugly set offs which would occur on the side lot line.

As the three fronts—southerly, easterly and northerly sides—were to be complete elevations, each in itself, on account of the conspicuous position the building occupies (the three fronts being open to the view of the Central Park entrance), it was necessary to have ornamented elevations, although the easterly and northerly elevations are on the lot line and therefore could not have any projections beyond same.

The southerly or main building, which is on the 59th St. side, was treated in a dormer effect above the 200-foot limit (18th story), so as to permit as much of the front as possible for building purposes which would be on the building line, as is permitted under the Zone Regulations.

An attempt was made to study the three facades in the Renaissance style, but the vast number of windows in the building, the offsets and dormers, as well as the return sides of the easterly and northerly sides of the building, resolving itself into a series of towers on the three sides as shown on the perspective, showed that the Gothic style was the only one that would properly lend itself to this unusual problem.

The interior of the bank is laid out in the Gothic style to match.

A unique departure in bank building construction was introduced in the erection of the building, in that the bank sublet all contracts itself, under

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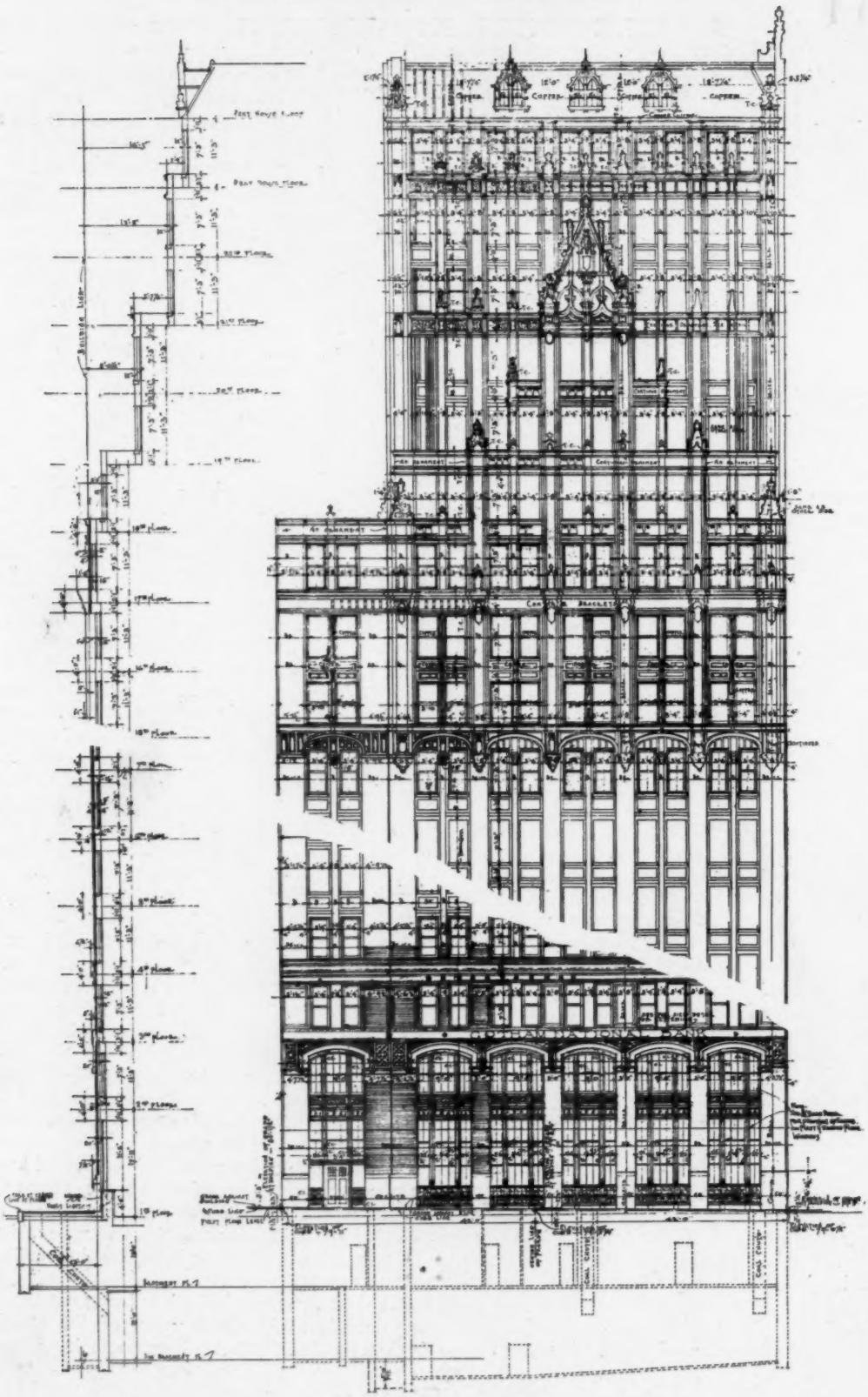

ELEVATION ON 59TH STREET

GOTHAM NATIONAL BANK, COLUMBUS CIRCLE, N. Y.

SOMMERFELD & STECKLER, *ARCHITECTS*

GOTHAM NATIONAL BANK, COLUMBUS CIRCLE, NEW YORK
SOMMERFELD & STECKLER, *ARCHITECTS*

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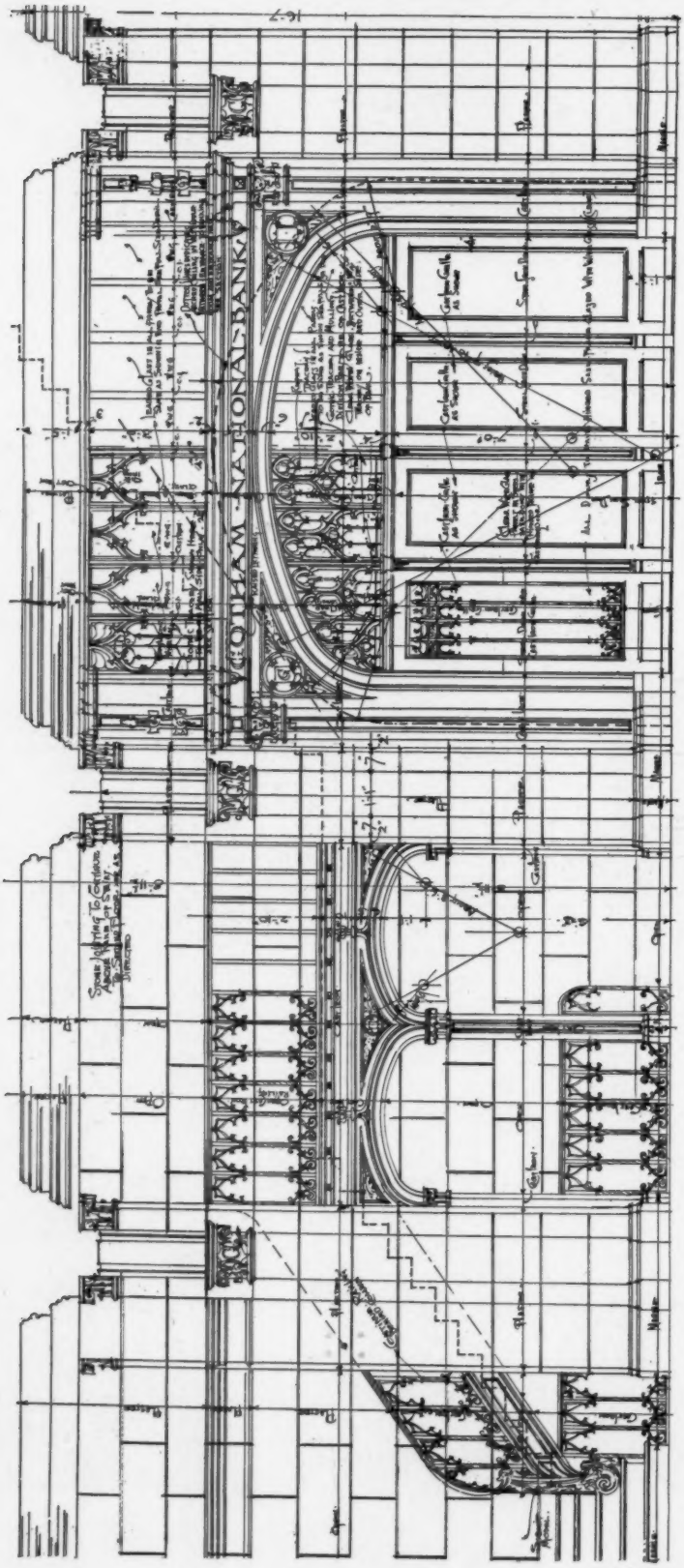
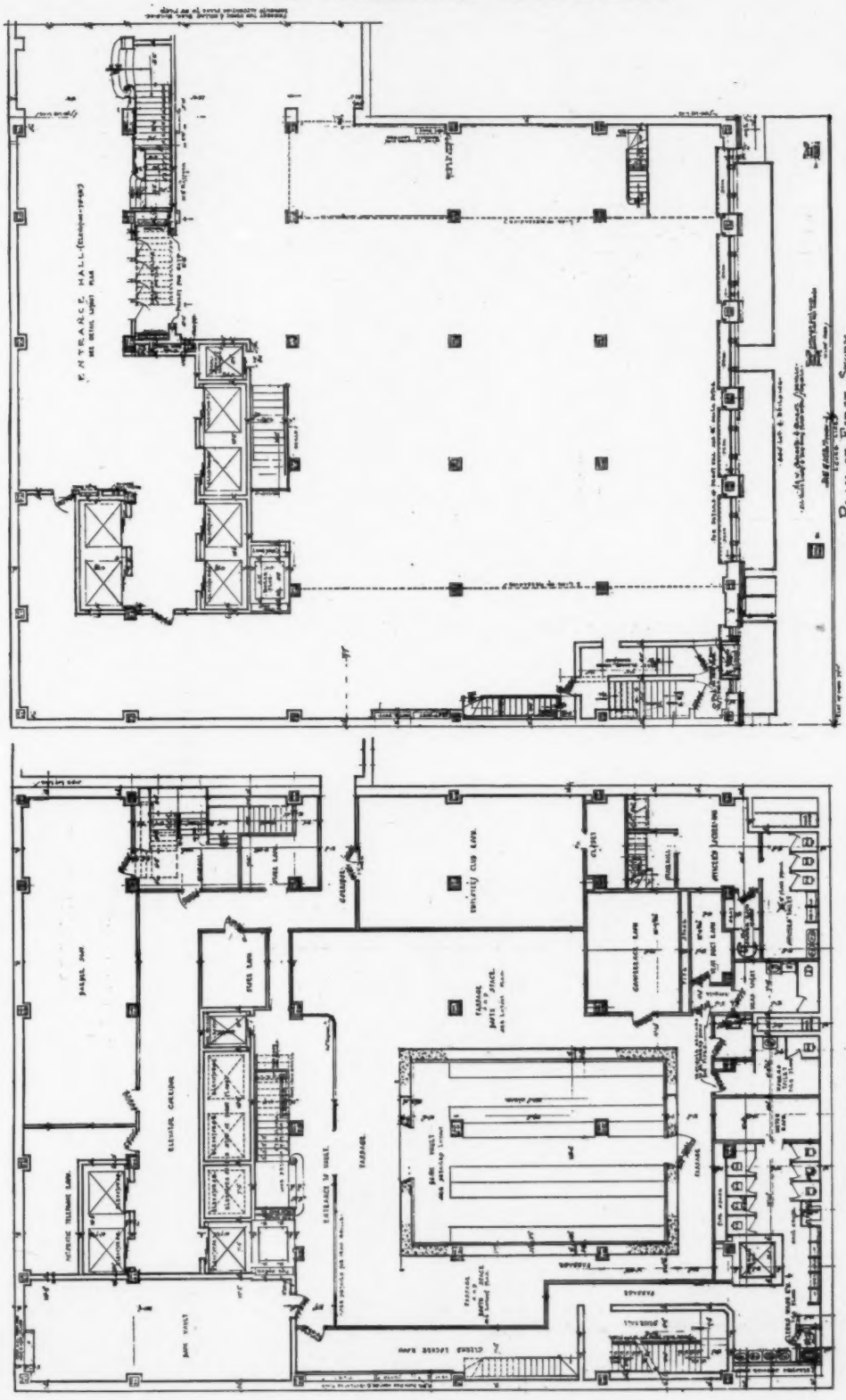
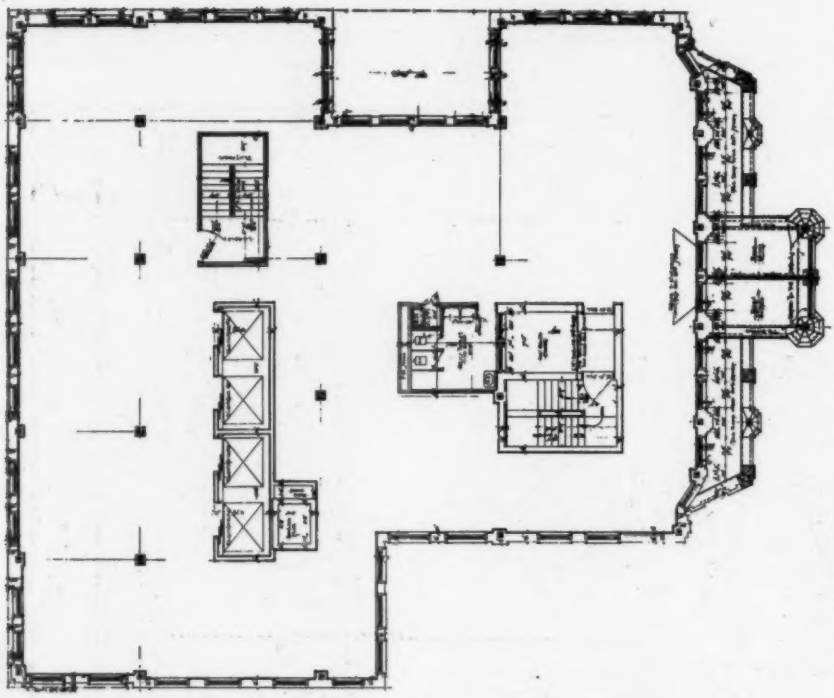


GOTHAM NATIONAL BANK, COLUMBUS CIRCLE, NEW YORK
SOMMERFELD & STECKLER, *ARCHITECTS*

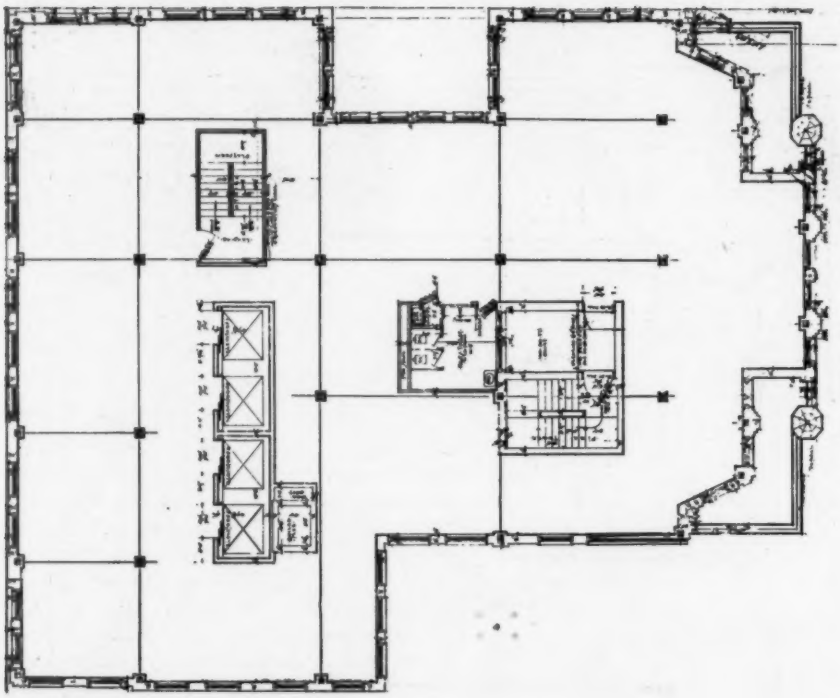


GOTHAM NATIONAL BANK, COLUMBUS CIRCLE, NEW YORK

SOMMERFELD & STECKLER, *ARCHITECTS*



TWENTY-FIRST AND TWENTY-SECOND FLOOR PLAN



NINETEENTH FLOOR PLAN

GOTHAM NATIONAL BANK, COLUMBUS CIRCLE, NEW YORK

SOMMERFELD & STECKLER, *ARCHITECTS*

the direct supervision and charge of one of its vice-presidents. The manner in which the building was erected, its speed and practicability of construction, has proved that this departure was successful.

On July 1, 1920, the first piece of steel was swung into position, and on November 11 the steel work

VIEW OF UPPER STORIES

had been completed. There was a six weeks' strike period in this time.

The building is 84 feet by 100 feet; 24 stories high; has six high speed passenger elevators; contains an oil as well as coal burning heating plant; is fireproofed to the point where a sprinkler system was not called for; and rests on concrete-bed rock foundations.

The estimated cost was $2,250,000.

Mr. Henry I. Oser was associated with the architects from the inception of the work as engineer in all the various features of the construction.

A UNIQUE AMERICAN CHIPPENDALE MAHOGANY, SERPENTINE FRONT "CHEST ON CHEST." PERIOD ABOUT 1775. FROM THE MYERS COLLECTION

Bismarck's Unique Park

Bismarck, the capital of North Dakota, is to be congratulated upon its plans for the construction of a historical park, adjacent to the State House. It is proposed to employ fifteen acres, a feature being a replica of a Mandan Indian village of pioneer days, with other appropriate historical elements. This is an exceedingly commendable idea and its originator is to be felicitated upon it. In various museums Indian relics are preserved, but nothing is recalled which is comparable to the village symposium as proposed.

XUM

Extracts from Competition Program of Scottish Rite Cathedral Competition, Portland, Oregon

REQUIREMENTS OF THE BUILDING

1. *Purpose of the Building.* While certain rooms are indicated below covering the requirements for refreshment, dancing, billiards, etc., the designer should bear in mind that the recreational features of this building are quite incidental to its main purpose although they necessarily occupy considerable space.

It is those gatherings of the Masonic brotherhood connected with the serious and ancient rites of the Order that should determine the character of the building and placing of the emphasis in the design of its forms.

Designers are reminded in this connection that the purpose and function of the Scottish Rite in the Order of Masonry is sufficient unto itself without reference to the rites or forms of other bodies either civil or religious, that this purpose should be expressed as an entity, and that the architectural forms to express and contain it should not partake of the character of our public and governmental buildings on the one hand—nor of the forms of ecclesiastical architecture either ancient, established or modern on the other.

Nothing in the above is intended to preclude the natural working out in both mass and detail of forms that may to a greater or less extent recall conventional architectural forms, but the external application of style-forms to the natural building up of the building itself from the practical requirements and materials of construction, in order to bring the mere appearance of the building within one of the academic categories to which the usual style-word "Gothic," "Classic," or "Greek" and the like have been attached should not be sought for.

Following the wishes of the Board of Trustees as to the architectural character of the building, it should be stated that they do not care to consider any original or individually invented style forms or details, but believe that all architectural material and the character of the building forms necessary to give this building a clean, modern and distinguished appearance may be found in common use in the buildings of American communities. It is that aspect of the architecture of the building which could continue to speak its character and purpose even when viewed at a great distance that should be given the chief attention—such refinement of detail and modest decoration as may naturally appear would be expected to follow as a matter of course.

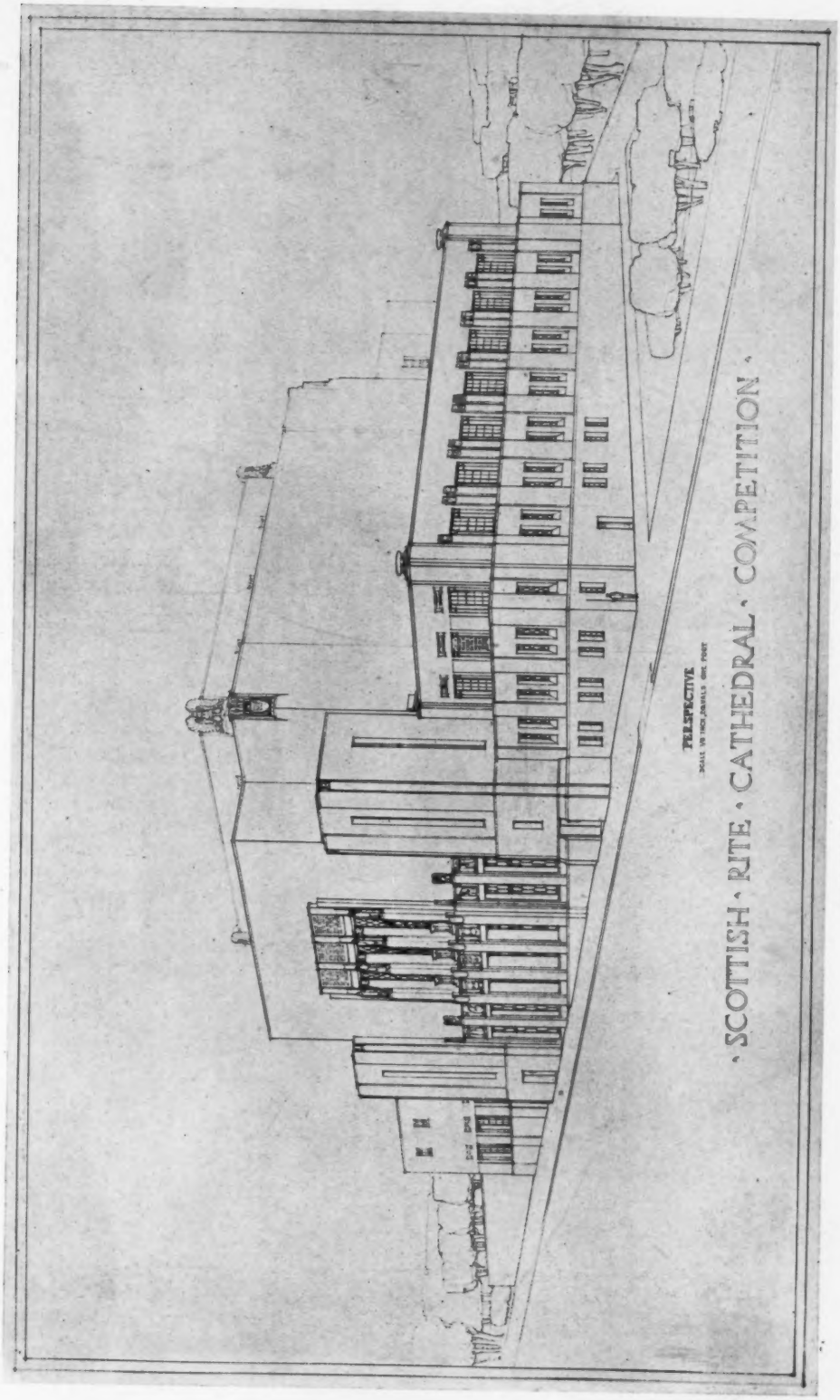
2. *Position of Building.*—The only entrance to the building (excepting entrance to the janitor's apartment) shall be from Green Ave. The Green St. side of the building shall not, however, be considered as a principal facade, as this building will be generally first seen from Vista Ave. and Washington St. It is, therefore, obvious that all elevations of the building must necessarily be considered of equal importance, although expressing varying functions.

3. *Adjustments in Size.*—As the actual space requirements as set forth below, call for a building, the cost of which will exceed the appropriation, and in view of the fact that certain adjustments between the extent of the undertaking and its cost will have to be made, by the architect appointed to carry out the work, competitors are asked to base their planning on some simple unit base that will admit of reductions in size without unduly disturbing the organization of the building.

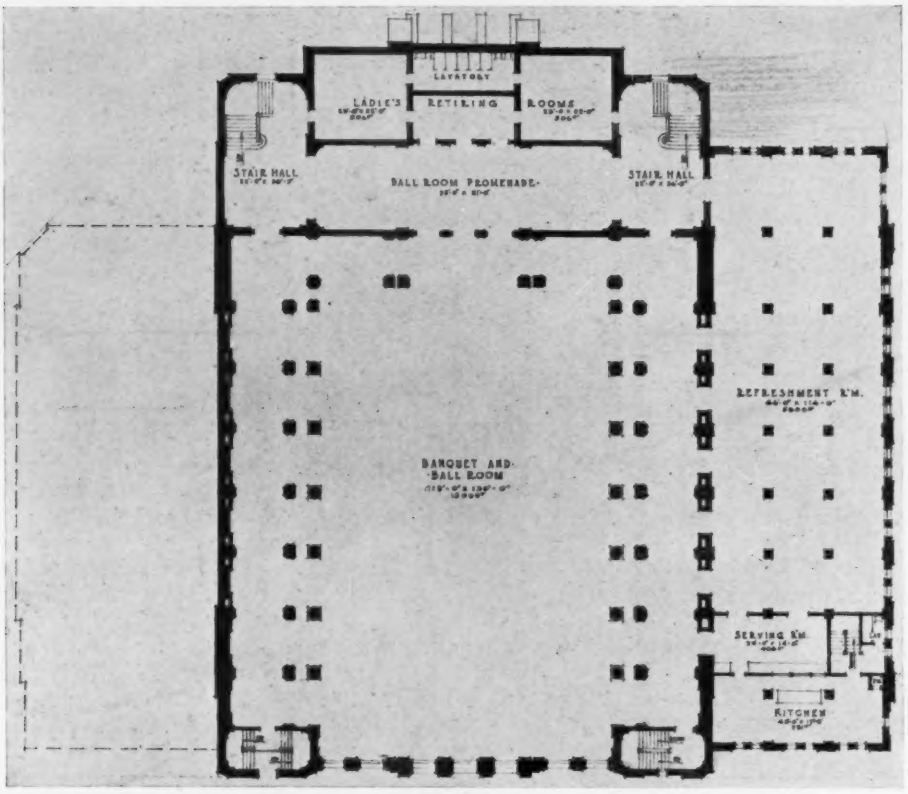
4. *Conformity With Laws.*—The professional advisor will check all designs submitted with the building and housing code of the City of Portland and will eliminate all designs that do not conform thereto in all those particulars, concerning plan study and design drawings of this character, may be reasonably expected to give an account.

5. *Construction.*—The designs are to represent a building constructed of brick and terra cotta. Stone is not to be contemplated except as an unmoulded and undecorated base course, and the use of such stone shall not extend above the lowest window sills. In case of the building following up the grade the stone may extend to include the lowest window sills of the given portion of the building at the higher grade levels, even though these points should in fact be higher than the lowest window sills in another portion of the building.

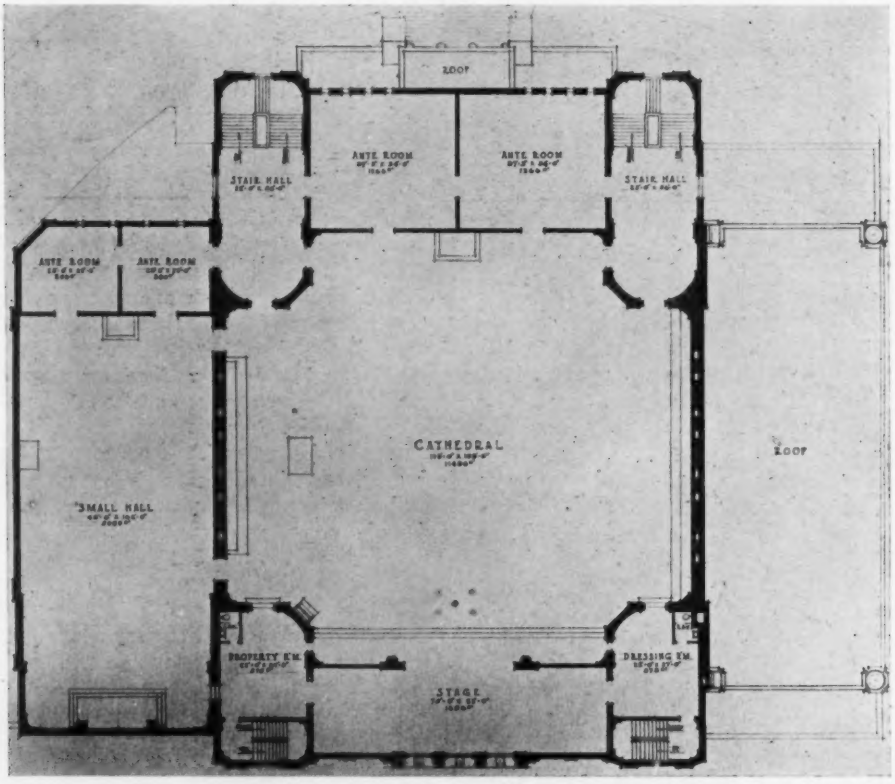
6. *Relation of Design Character to Materials of Construction.*—The designers are cautioned against the use of a character and of architectural forms that are typically best expressed in stone and then simply translating the same into brick and terra cotta. The owners are selecting the above materials because they believe them to be the best suited to the circumstances and they do not wish to have built into the forms of the building any suggestion of a wish that the building had been built of other materials which for practical reasons had to be forgone. In the use of terra cotta the jury will not recognize the conventional as-



FIRST PRIZE DESIGN—PORTLAND, ORE.
SUTTON & WHITNEY, *ARCHITECTS.*



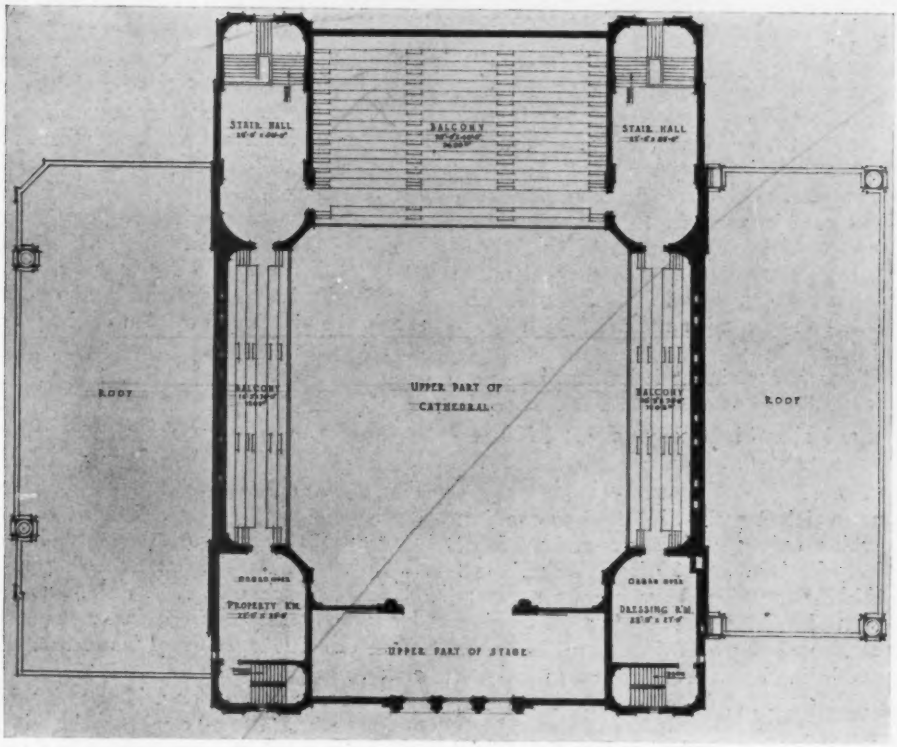
LOWER FLOOR PLAN



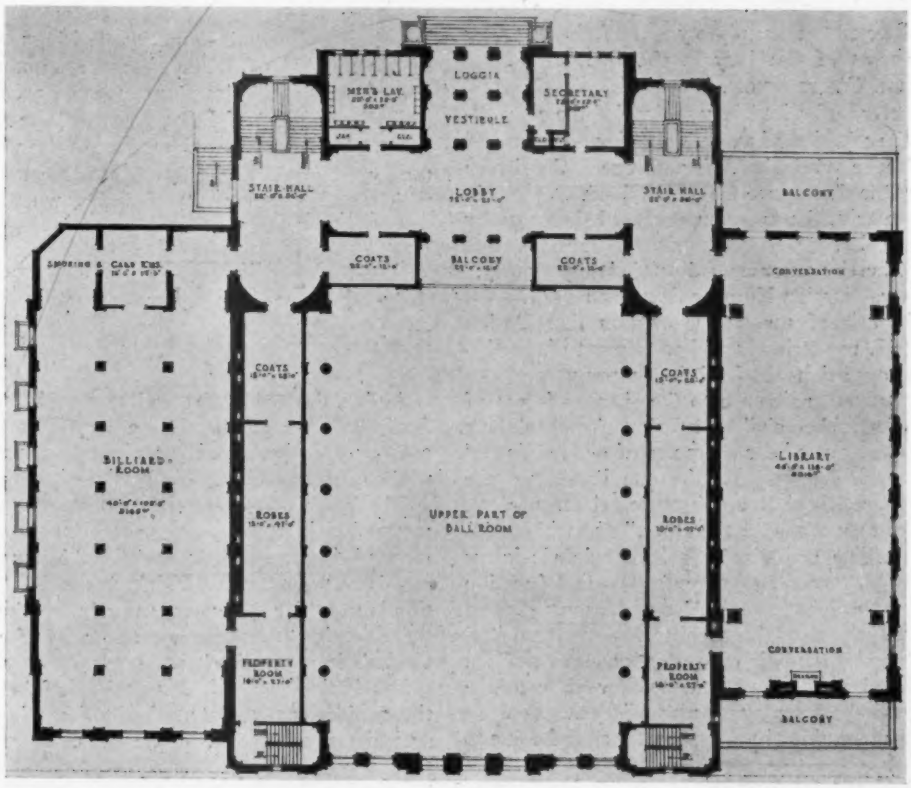
MAIN FLOOR PLAN

SCOTTISH RITE CATHEDRAL COMPETITION, PORTLAND, ORE.

FIRST PRIZE DESIGN—SUTTON & WHITNEY, *ARCHITECTS*



BALCONY FLOOR PLAN



MEZZANINE FLOOR PLAN

SCOTTISH RITE CATHEDRAL COMPETITION, PORTLAND, ORE.

FIRST PRIZE DESIGN—SUTTON & WHITNEY, *ARCHITECTS*

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sumption that terra cotta is necessarily a material calling for a high degree of ornamentation or special surface treatment and designers should not endeavor to follow the recently developed draughting conventions which are supposed to give a terra cotta character to the representation of the building. The successful use of terra cotta will for the purposes of this building be determined not so much by appearance as by the understanding displayed by the designer in the possibilities and limitations of the material and its best association with other materials, both structurally and decoratively.

The building will contain the following rooms:

1. PRINCIPAL STORY.
   Cathedral Hall, with balcony, to seat 2,500 persons. Two ante rooms, each 1,250 square feet.
2. LOWER FLOOR.
   Banquet and ball room of 15,000 square feet in area with a ceiling heighth over at least 5,000 square feet of this area of 20 feet. Refreshment room and kitchen provide on the lower floor or mezzanine room of 5,000 square feet in area. Janitor apartments, consisting of living room, bedroom, kitchen and bath. Furnace and fan rooms.

REPORT OF THE JURY AS TO PRIZE WINNING PLANS

To the competitors in the competition to select an architect for the proposed Scottish Rite Cathedral for Oregon Consistory Number One, Incorporated.

I am directed to transmit to you the following copy of the report of the jury in the SCOTTISH RITE CATHEDRAL COMPETITION.

The properly authorized jury to decided the competition for the selection of an architect, for the proposed Scottish Rite Cathedral, for Oregon Consistory Number One, Incorporated, of Portland, Oregon, in accordance with the program prepared therefore by William G. Purcell, official advisor to the Board of Trustees, hereby announces the following awards:

First Place.—Design Number Seventeen (17).

The jury is of unanimous opinion that Design Number 17, most clearly and with great distinction meets the conditions set forth in the program.

That "without reference to the rites or forms of other bodies, either civil or religious," and while it does not "partake of the character of our public and governmental buildings on the one hand, nor the forms of ecclesiastical architecture, either ancient, established or modern, or the other," and without involving "original or individually invented style-forms or details," it "expresses the purposes and function of the Scottish Rite in the Order of Masonry—as an entity." That, also, the architectural material and the character of the building—give it a clean, modern and distinguished appearance—which would continue to speak its character and purpose."

Furthermore, this visual aspect is seen to be due to a frank articulation of the several plan features, arising from a simple and direct solution of practical requirements. The disposition of the banquet hall, refreshment room and kitchen on the same floor; of the library and billiard room on the same floor; of the cathedral and smaller hall isolated; together with consistent and convenient location of stairs and generous provision for circulation for companies numbering a thousand or more; all in a manner to obtain dignified and sumptuous architectural effects—are, in the unanimous opinion of the jury, points of eminent superiority over all other designs submitted.

To Build Model French Town

The plans devised by a French building organization, La Renaissance des Cites, for rebuilding the destroyed town of Pinon, France, as a model for future construction work, were outlined by George B. Ford of New York at a meeting of the Boston Society of Architects. Mr. Ford, who was engaged for eighteen months as consultant with La Renaissance des Cites, illustrates his lecture with lantern slides.

Pinon was situated on a hill not far distant from the spot where a small company of engineers, armed with picks and shovels, were the first American troops to meet the Germans. Not only were the buildings razed, but the hill itself was blown away by mines and counter-mines while Pinon was a part of No-Man's land. The French association, which is composed of the leading engineers, architects and sanitation experts of France, selected the remains of this town, after a thorough search of the war area, as the most logical district for building a model village, which, unlike the average French town, will have a water and sewerage system.

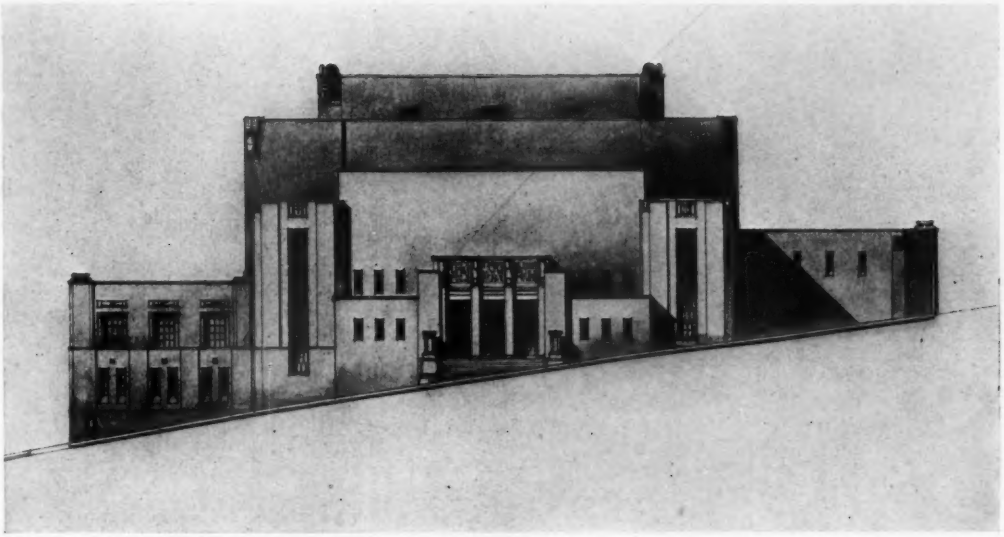
Spain To Use Electricity

King Approves Project to Develop the Country's Water Power

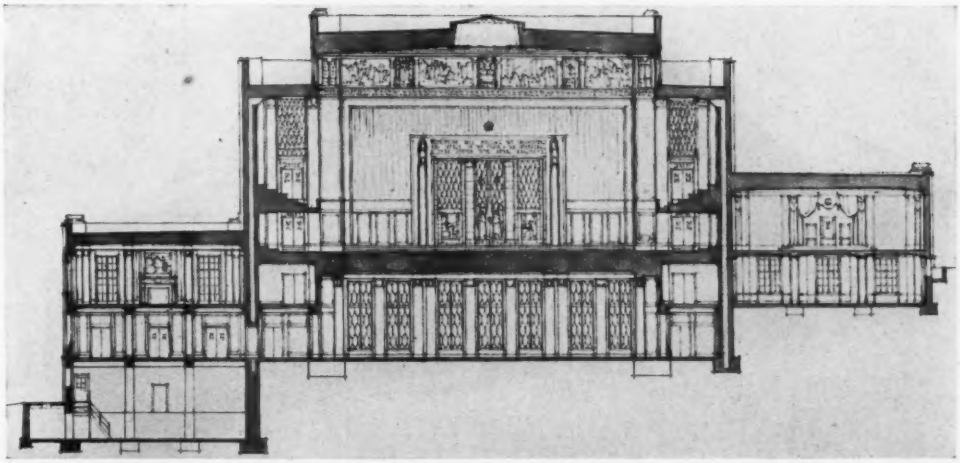
A plan, drafted by the leading electrical experts in Spain to develop electrical energy throughout the country, was presented last night to King Alfonso, who consented to become a patron of the project.

The plan contemplates the construction of enormous electric stations along the principal rivers and railroad lines, extending over 6,500 kilometers. The cost is estimated at 200,000,000 pesetas. The intention is to utilize the water power in the rivers and at the same time to use the poorer quality of coal which abounds in many districts.

In addition to furnishing power for the railroads, the project contemplates distribution of power for agricultural and industrial purposes.



WEST ELEVATION



SECTION

SCOTTISH RITE CATHEDRAL COMPETITION, PORTLAND, ORE.

FIRST PRIZE DESIGN—SUTTON & WHITNEY, *ARCHITECTS*

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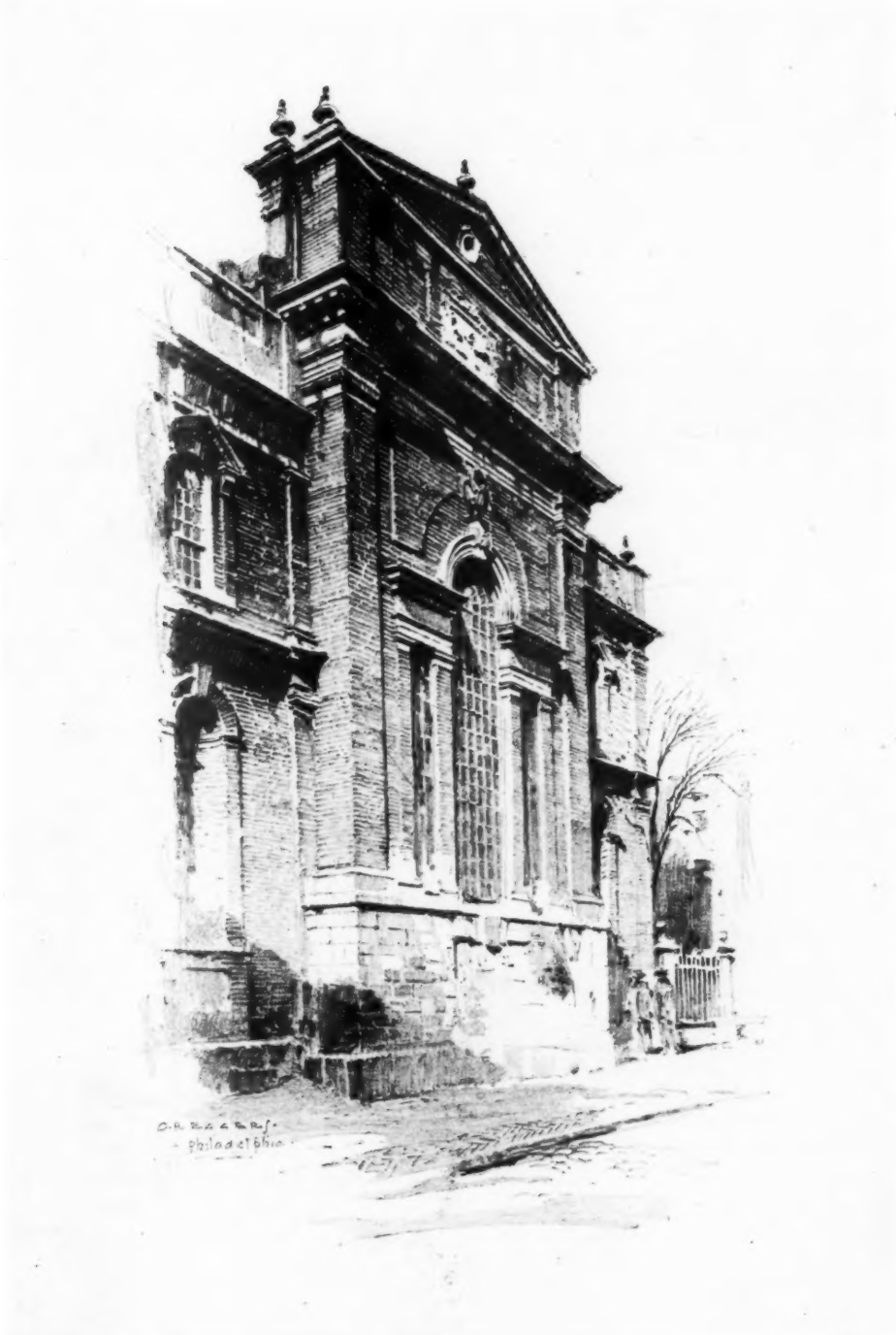
Christ Church, Philadelphia, Pa.

(See reproduction of original drawing by O. R. Eggers on opposite page)

In many communities during the earlier Colonial period a hobby of architecture was indulged in by prominent citizens who recreatively sought to design and plan important structures. These designs and plans they were able to have executed because of the sufficient prominence of their ownership and ability to dominate the master builders of that day.

In no section of the country have these amateur architects been more in evidence than in Philadelphia and we find that of several remarkable old churches to be found in that city, one of them, Christ Church, which is perhaps the oldest and largest, and the subject of Mr. Eggers' sketch in this issue, was begun in 1727 from designs by Dr. John Kersley, an amateur architect, who happens to have succeeded reasonably well.

It is a pleasure to recall the reverential attitude of the people of Philadelphia for these old Colonial landmarks and it is through this affectionate care that Christ Church is today preserved as near as possible as originally designed and built.



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XUM

EDITORIAL

Chicago's Opportunity

THE burning of the Cathedral of SS. Peter and Paul in Chicago has served to call forth expressions of opinion as to the character of the structure that shall replace it. According to the daily press which has printed letters from readers and interviews with Chicago architects, it is firmly a unanimous opinion that the new structure must be Gothic in design, of modern steel construction and the finest example of ecclesiastical architecture ever constructed.

Jarvis Hunt declares the "crying need" of Chicago is "a cathedral that expresses the dignity of religion in the midst of the community." Thomas Tallmadge shares this view and believes that there should be utilized all the knowledge of steel engineering and construction that is available today. Mr. Tallmadge further is of the opinion that by so doing there could easily be designed a structure that would "surpass in height Amiens, Notre Dame or Rheims Cathedral.

Chicago may profit in its plan for a cathedral by the example furnished by New York. It is now more than twenty years since the competition for the Cathedral of St. John the Divine was held. Today there stands but the uncrowned crossing, the chapels and transepts. The architectural history of this structure is too well known to architects to need repetition. Born in one architectural style and now being trained in another, it will be interesting, if any of the present generation live that long, to see what the final result will be.

CHICAGO has been long known as the centre of a region where architects have sought to evolve a national style in architecture. Will it now follow in its design for this new and large religious structure the Gothic precedent of Europe, or will it evolve some great building that will mark an epoch in cathedral building? The opportunity seems to have arrived. What will the architects of Chicago, unhampered by ecclesiastical authority or an unresponsive building committee, do with it?

"Is it possible," asks the Chicago *Tribune*, "to produce a sincere and original expression of the religious spirit in the materials of today? Is the religious spirit as it exists today sufficiently intense and sufficiently idealistic to produce its own architectural expression?" The answer is, it is and it has.

Why not an American Cathedral? One that will typefy religious America and not one that will be typical of foreign peoples? It can be done, and the architects in the Middle West are capable.

Philadelphia Building Trades Work Toward Building Resumption

THE Associated Building Trades of Philadelphia have taken a long step forward toward the active resumption of building.

They urge employers to meet with them and cooperate toward stabilization and standardization of the building industry. In extending this invitation they do not propose to go into any arrangement empty-handed; they meet the situation more than half way. They pledge as far as they can control it, efficiency, maximum production and elimination of their own waste. Nothing could be fairer.

Further, they offer to assist building employers in lowering unit costs, to work for the adoption of better methods, to secure as far as it may be done, continuity of employment and improved management.

Their communication setting forth these promises and outlining conditions as at present affecting the building industry is a most progressive document. It is printed in part in the economics section of this issue.

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An Intangible Proposal Worth Millions

The Proposed International Credits Scheme of the League of Nations Can Be Made to Function Without Reference to the League—Would Stabilize the World

Anything having to do with the League of Nations is looked upon askance by Americans, no doubt, but the proposed International Credits Scheme of the Provisional Economic and Financial Committee can be put into force and operated by the important nations of the world without reference to the League and, since it is based upon scientific data and study by the world's greatest economic and financial experts, would do much to stabilize international credit conditions. And what does the world need more at the moment?

Speaking broadly, this is the essence of the scheme:

1. In order that impoverished nations, which under present circumstances are unable to obtain accommodation on reasonable terms in the open market, may be able to command the confidence necessary to attract funds for the financing of their essential imports, an International Commission shall be constituted under the auspices of the League of Nations.

2. The Commission shall consist of bankers and business men of international repute, appointed by the Council of the League of Nations and shall have discretion to appoint agents and sub-commissions and to devote upon them the exercise of its functions.

3. The governments of countries desiring to participate shall notify to the Commission what specific assets they are prepared to assign as security for commercial credits to be granted by the nationals of exporting countries.

Gold Value of Credits

4. The Commission after examination of these assets, shall determine the gold value of the credits which it would approve against the security of these assets.

5. The participating governments shall then be authorized to issue bonds to the gold value approved by the Commission. The bonds shall be in such form, with such date of maturity and rate of interest, as the Commission may decide and shall, in particular, enumerate the assets pledged against the bonds. The denomination of each bond and the specific currency in which it is to be issued shall be determined by the participating government in agreement with the Commission, in accordance with the conditions applicable to the particular transactions in respect of whih they are issued.

Bonds as Collateral

11. The fundamental purpose of the scheme being to facilitate and expedite the import of raw materials and primary necessaries as well as enable the borrowing countries to re-establish production **especially for export,** bonds secured on the assigned assets shall not be utilized as collateral for credits for the import of other commodities, provided that where the Commission is satisfied that the import of such other commodities will assist in securing the above purpose, it shall have the discretion to permit special exceptions to the above rule subject to such conditions as it may think fit.

Now, such a scheme as that, divorced completely from the League, and leaving complete autonomy to the various nationals, would work wonders in the stabilization of international credits.

Here is a most important part of the scheme. This would save millions of dollars and tend materially to increase what might be termed the business stability of any nation.

Safeguards for Contracts

16. Pledged bonds shall be dealt with as follows:—

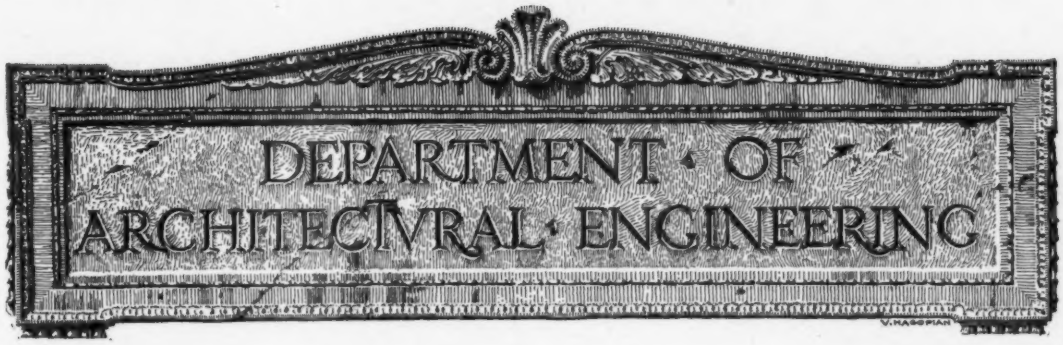
(a) In the absence of any failure by the importer to fulfil his contract with the exporter, the coupons on their due date, and the bonds as they are released shall be returned to the importer who shall return them to his Government forthwith.

(b) In the event of the importer not fulfilling the terms of his contract, the exporter (or his assigns) may either hold the bonds until maturity, or if he prefers he may, at any time, sell them in accordance with the laws and customs of his country, providing that before the bonds are sold a reasonable opportunity shall be given to the issuing Government to repurchase them by paying to the exporter the amount of his claim. The proceeds of such sale shall be applied by the exporter towards covering his claims against the importer. Any surplus not required for this purpose shall be accounted for by the exporter to the participating Government.

(c) Any coupons or bonds returned to the participating Government or purchased by such Government shall be forthwith cancelled in accordance with the regulations to be prescribed by the International Commission; cancelled bonds may subsequently with the approval of the Commission be replaced by other bonds either in the same or in a different currency, in accordance with the conditions governing the original issues of bonds.

It is interesting to note that the Provisional Economic and Financial Committee of the Council of the League of Nations says that an International Conference to discuss general financial questions is undesirable, until 1922.

That so far as questions of finance are concerned, there is no special necessity for the convocation during 1921 of an International Conference to deal solely with the definitive Economic and Financial organization to be established by the League.



Heating and Ventilating Equipment

The Effect of Recent Investigations Upon the Design and Operation of Heating and Ventilating Equipment

By CHARLES L. HUBBARD

PART I

ACCORDING to the latest theory, the air problem is one of physics and not of chemistry, and the effect of insufficient ventilation begins with the skin and not with the lungs.

Briefly, ventilation, or better, "air conditioning," consists essentially in maintaining the proper temperature, humidity and motion of the air. To these, under special conditions, should be added the removal of dust, fumes, odors and bacteria. While the chemical theory of ventilation has been generally accepted by architects and engineers until recently, there have been doubts as to its soundness among laboratory investigators abroad for a long time. It was not, however, until about 1910 that the newer ideas took definite shape in this country, and by the end of 1914 exhaustive tests had been carried out, with still others under way. The result of this work, which has been continued up to the present time, has been the practical acceptance of the physical theory of ventilation by the American Society of Heating and Ventilating Engineers and the adoption of a Synthetic Air Chart embodying these principles. This chart has been designed for the purpose of measuring with a greater degree of accuracy than heretofore the air conditions existing in any given room, and takes into account temperature, humidity, air motion, dust, bacterial odors and distribution. Carbon dioxide is also considered, but chiefly as a means of determining the air-distribution. Other injurious substances which are found in connection with certain industrial processes are also given due consideration.

Instead of speaking of the ventilation of a room as good, bad or indifferent, the results of tests are plotted on the chart and the air conditions recorded as a percentage of perfect. This is done by considering all of the known factors which go to make up the air condition, giving to each its due importance in the final result as will be described later.

In view of our present knowledge, it would appear that air has two principal functions, one chemical and the other physical. That is, it aerates the blood and absorbs bodily heat. In order to perform the first of these, it must contain a sufficient amount of oxygen and be free from poisonous gases, and for the second it must have the proper temperature, humidity, and motion to carry away the excess of bodily heat. If the air in a room is not renewed from time to time, or a continuous supply provided, its oxygen is gradually consumed, and furthermore, it becomes laden with heat and moisture and is thus finally unable to perform either of its functions.

ANIMAL HEAT AN IMPORTANT FACTOR

In connection with this condition, it is important to note that the fault develops on the physical side so far in advance of the chemical, that under ordinary circumstances, no attention need be paid to the latter. In other words, any volume of air sufficient to carry away the surplus heat from the body will furnish many times the oxygen required to aerate the blood.

Recent developments in experimental physiology have shown that harm cannot come from rebreathing exhaled air under ordinary conditions, because at each breath we take back into the lungs the "dead-space" air which fills the nose and larger bronchial

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tubes, and which constitutes about one-third the volume of a quiet inspiration. Owing to this fact alone, the air of the lungs is always very "impure" and never approaches the purity of the surrounding atmosphere because under the most favorable conditions, it must be mixed with at least one-third exhaled air. As a matter of fact, the air is only partly expelled from the lungs at each breath, so that the entering mixture of pure and exhaled air is again lower in chemical purity to a point far below that found in the most poorly ventilated room. Therefore the process of respiration is not one of filling the lungs with pure air at each breath, but simply of admitting enough to maintain a certain chemical standard by means of dilution.

A Deficiency of Oxygen Means Faster Breathing

If the surrounding air is lacking in the normal percentage of oxygen, we simply breathe a little faster to make up the deficiency, and the amount of oxygen supplied to the lungs is thus maintained without regard to the purity of the surrounding air for all usual conditions encountered in ventilating work. The rate of respiration is controlled automatically by the amount of carbon dioxide dissolved in the blood. If this falls too low, stimulation of the nerve center controlling respiration fails to take place until a sufficient quantity has accumulated. On the other hand, if carbon dioxide accumulates too rapidly, due to the poor quality of the surrounding air, or to other reasons, the rate of respiration is quickened until the increased amount of oxygen taken in neutralizes the carbon dioxide and brings it back to the normal amount. Thus we see that the chemical function of the air is practically automatic and needs no particular attention within a range of conditions much wider than is ordinarily likely to occur.

Coming now to the physical function, it is a known fact that living beings constantly produce and give off to their environment an excess of bodily heat, which in the case of a human adult, amounts to a quantity sufficient to raise the temperature of 1,000 cubic feet of air 15 to 20 degrees F. This heat must be promptly removed from the body, and is carried away partly through the lungs in the expired air, but chiefly through the skin by the processes of radiation, by conduction, through the clothing, and the evaporation of perspiration.

Proper Temperature and Humidity Essential

In view of this it is evident that a comfortable and healthful condition can only be secured by surrounding the body with air at the proper temperature and humidity. If too hot, radiation and conduction are prevented; if too humid, the evaporation of perspiration is interfered with. Furthermore, if there is no air movement, a layer, both too hot and too humid, is soon formed next to the body, even though the general air conditions of the room are satisfactory.

When many people are crowded together in a small space, the air soon becomes too warm, due to the heat given out from their bodies, and its distressing effect is added to both by its stillness and by the moisture exhaled with the breath. More and cooler air must be supplied, but it should be borne in mind that what we generally recognize as "fresh" air does not depend upon its richness in oxygen, nor upon the absence of carbon dioxide, but upon its ability to take away heat and moisture; in other words, a lower temperature, less humidity, and an increased air movement are required. In order to carry away the heat given off by human bodies without admitting air at such a low temperature as to create uncomfortable or dangerous drafts, and also to avoid overheating, on the other hand, it is necessary to supply about 2,000 cubic feet of air per hour per person, which curiously enough corresponds closely with that supposed to maintain the proper degree of purity under the older theory based on chemical standards. This is a fortunate coincidence, as it greatly simplifies the adaptation of systems already installed to requirements based upon the more recent theory of ventilation, and thus makes easy the practical transition from one theory to the other.

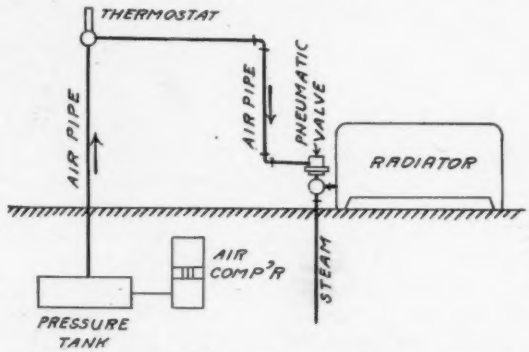

FIG. 1. DIAGRAM SHOWING THE ESSENTIAL PARTS OF A PNEUMATIC SYSTEM OF TEMPERATURE CONTROL

In the laboratory experiments referred to, it was found that certain combinations of temperature and humidity gave the greatest comfort to the occupants of the test room. For example, with a temperature of 68 degrees, a relative humidity of 44 per cent. was the most satisfactory; for 70 degrees, 36 per cent.; for 72 degrees, 28 per cent., etc. Using this relation as a standard, temperatures ranging from about 3 degrees below the ideal, for a given humidity, to 3

TABLE I

Room or dry-bulb temp. degrees	Relative humidity for different wet-bulb temperatures: At rest, 56 deg. per cent.	Light work 54.5 deg. per cent.	Moderate work 53 deg. per cent.	Hard work 51.5 deg. per cent.
68	47	41	35	29
70	41	35	30	24
72	35	30	25	19

degrees above, are considered as constituting a "comfort zone." That is, for a relative humidity of 36 per cent., any temperature between 67 and 73 degrees will be found comfortable, with a maximum of comfort at 70 degrees. The relation between temperature and humidity for the highest degree of comfort, in still air, as determined by the Chicago Commission on Ventilation some years ago, is R = 316 — 4 T, in which

R = The relative humidity (per cent).

T = The room temperature, in degrees F (for any temperature above 55 degrees).

For example, at 70 degrees, the relative humidity should be

R = 316—(4x70).
= 36 per cent.

The Synthetic Air Chart, previously mentioned, has been revised some eight times since its original appearance in 1912 and varies slightly from the above, taking into account whether the person is at rest or engaged in light, moderate or hard work. This, for still air, assumes an ideal wet-bulb temperature of 56 degrees for the first condition noted above, 54.5 degrees for the second, 53 degrees for the third, and 51.5 degrees for the fourth. Using these figures, and referring to a psychrometric table for the corresponding humidities, with room or dry-bulb temperatures of 68, 70 and 72 degrees, we have the following, as shown in Table I, in which the condition of "light work" calls for humidities corresponding most nearly with those given by the formula R = 316 —4 T.

Table II (made up from curves on the air chart) gives the proper wet-bulb temperatures for different degrees of physical exertion, taking into account the air motion, from a state of rest to 200 feet per minute velocity. After obtaining the desirable or ideal wet-bulb temperature from Table II for the conditions of air movement and degree of exertion, a suitable combination of room or dry-bulb temperature and relative humidity can be selected from a psychrometric table, a portion of which is included in Table III for purposes of illustration.

TABLE II

Air motion, feet per minute	Physical State: At rest	Light work	Moderate work	Hard work
	Desirable wet-bulb temperature: degrees.	degrees.	degrees.	degrees
0	56	54.5	53	51.5
20	57	55	54	52.5
40	57.5	56	54.5	53
60	58	56.5	55	53.5
80	58.5	57	55.5	54
100	59	57.5	56	54.5
120	59.5	58	56.5	55
140	60	58.5	57	55.5
160	60.5	59	57.5	56
180	61	59.5	58	56.5
200	61.5	60	58.5	57

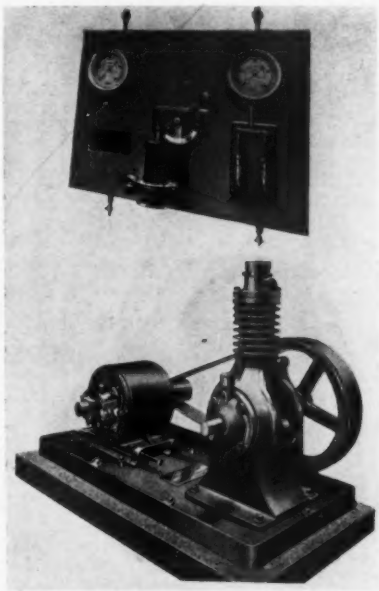

FIG. 2. MOTOR-DRIVEN AIR COMPRESSOR WITH SWITCH AND AUTOMATIC STARTING DEVICE

The figures in Table III are taken from complete tables, published in pamphlet form by the Wheeler Condenser and Engineering Co.

EXAMPLE

Moderate work is to be carried on in a room kept at a temperature of 68 degrees during the heating season. The average velocity of air movement through the room is 20 feet per minute. What relative humidity should be maintained to give the greatest degree of comfort?

Looking in Table II, in the column marked "moderate work," on the line corresponding to 20 feet velocity, we find the ideal wet-bulb temperature to be 54 degrees. Now referring to Table III we find for a room temperature of 68 degrees, it will be necessary to maintain a relative humidity of 39 per cent. to give the desired wet-bulb temperature of 54 degrees.

EXAMPLE

A certain mechanical process requires a relative air humidity of 66 per cent. and light exertion on the part of the operatives. What room temperature (dry-bulb) and air motion should be maintained to produce maximum comfort?

We find from Table III (3rd column) that a rela-

XUM

TABLE III

Room or dry-bulb temperature	Wet-bulb temperature	Relative Humidity	Pounds of moisture per 1,000 cu. ft. of air	Room or dry-bulb temperature	Wet-bulb temperature	Relative Humidity	Pounds of moisture per 1,000 cu. ft. of air
62	60	90	0.797	68	60	63	0.679
..	59	84	0.743	..	59	59	0.635
..	58	80	0.708	..	58	55	0.592
..	57	74	0.655	..	57	51	0.549
..	56	69	0.611	..	56	47	0.506
..	55	65	0.575	..	55	43	0.463
..	54	60	0.531	..	54	39	0.420
..	53	55	0.487	..	53	35	0.377
..	52	51	0.451	..	52	31	0.334
64	60	80	0.757	70	60	56	0.643
..	59	75	0.710	..	59	52	0.597
..	58	70	0.662	..	58	48	0.551
..	57	65	0.615	..	57	45	0.517
..	56	61	0.577	..	56	41	0.471
..	55	57	0.539	..	55	37	0.425
..	54	52	0.492	..	54	34	0.390
..	53	48	0.454	..	53	30	0.344
..	52	44	0.416	..	52	26	0.298
66	60	71	0.716	72	60	50	0.612
..	59	66	0.666	..	59	46	0.563
..	58	62	0.626	..	58	43	0.526
..	57	58	0.585	..	57	39	0.477
..	56	53	0.535	..	56	35	0.428
..	55	49	0.494	..	55	32	0.392
..	54	45	0.454	..	54	29	0.355
..	53	41	0.414	..	53	25	0.306
..	52	37	0.373	..	52	21	0.257

tive humidity of 66 per cent. calls for dry-bulb and wet-bulb temperatures of 66 degrees and 59 degrees, respectively. Now looking in Table II, in the column headed "light work," we find a wet-bulb temperature of 59 degrees calls for an air movement of 160 feet per minute for the greatest comfort.

The Synthetic Air Chart, and directions for its use, may be found in the transactions of the Society of Heating and Ventilating Engineers for May, 1920. This has been prepared especially for the use of engineers and inspectors who have a large amount of this kind of work to do, and makes a very convenient and compact method of recording observations and plotting results.

The tables given in the present article, with the exception of Table III, have been made up from data taken from the curves and scales of the chart, and will be found convenient for the use of architects in connection with their own work.

Method of Taking Measurements

In making an investigation of a given room, first take the wet-bulb and dry-bulb temperatures, and measure the air movement under average working conditions. The temperatures are easily taken with a sling pyschrometer, and the air velocity approximated by means of an anemometer. It should be noted, however, that this instrument is not very accurate for low velocities, below 100 feet per minute, and it should be calibrated by attaching to a revolving arm and moving it by hand, or other means, at velocities of 20, 40, 60, 80 and 100 feet per minute, and noting the correction to be made to the dial readings for these velocities. In making tests for air movement, the anemometer should be placed at different points in the room and the average of the different readings taken for the final result. Very slow movements of air may be approximated by smoke tests if an anemometer is not available or fails to give satisfactory results.

Having taken the wet-bulb temperature and air movement, look in Table II for the *desirable* or *ideal* wet-bulb temperature corresponding with the measured air velocity and *physical state* or nature of work to be done. Next find the difference between the actual and ideal wet-bulb temperatures, and look in Table IV for the percentage of perfect, corresponding to this difference. This gives the relative condition of the air as regards temperature, humidity and movement.

TABLE IV

Wet-bulb difference degree	Percentage of perfect	Wet-bulb difference degree	Percentage of perfect
1	98.2	5	91.0
2	96.4	6	89.2
3	94.6	7	87.4
4	92.8	8	85.6

For example, if the wet-bulb temperature is found to be 60 degrees and the air movement 40 feet per

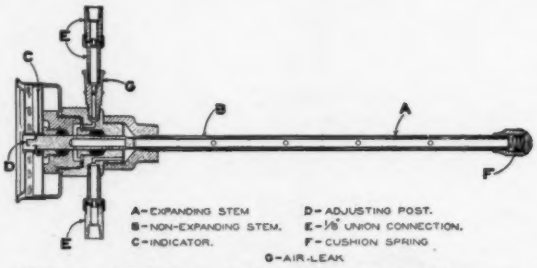

FIG. 3. SECTION SHOWING CONSTRUCTION OF AN INSERTION THERMOSTAT

minute in a room where light work is being carried on, the ideal wet-bulb temperature (from Table II) is found to be 56 degrees, making a difference of $60 - 56 = 4$ degrees, which, from Table IV, shows the air condition to be 92.8 per cent. of perfect as regards these three factors.

Dust determinations are next made use of by the use of a direct counting instrument, in which the air is caused to impinge against a cover slip, coated with adhesive material. The particles are counted under a microscope and the result reduced to cubic feet.

The rating on this basis is given in Table V.

If, in the room under consideration, the air was found to contain 60,000 dust particles per cubic foot,

TABLE V

Dust particles per cubic foot of air	Percentage of perfect	Dust particles per cubic foot of air	Percentage of perfect
10,000	99	90,000	91
20,000	98	100,000	90
30,000	97	110,000	89
40,000	96	120,000	88
50,000	95	130,000	87
60,000	94	140,000	86
70,000	93	150,000	85
80,000	92	.....	..

the rating, as regards this factor, would be 94 per cent. of perfect.

Bacteria determinations are made in accordance with the standard adopted by the American Public Health Association, which are as follows: Four-inch Petri dishes containing standard agar are exposed in the room for two minutes. They are then carefully covered and incubated for 48 hours at 22 degrees, Centigrade. The colonies on the plate are then counted, and the corresponding rating taken from Table VI.

TABLE VI

Number of bacteria colonies on plate	Percentage of perfect	Number of bacteria colonies on plate	Percentage of perfect
10	99	90	91
20	98	100	90
30	97	110	89
40	96	120	88
50	95	130	87
60	94	140	86
70	93	150	85
80	92	...	..

In case 30 colonies of bacteria appear, in the illustration, a rating of 97 per cent. should be given for this factor.

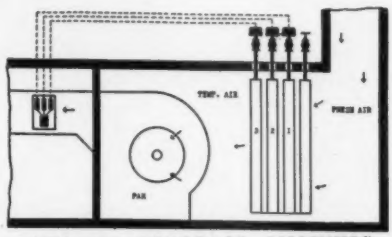

FIG. 4. DIAGRAM SHOWING APPLICATION OF A MULTIPLE THERMOSTAT TO HOT-BLAST HEATING

Odors are determined in accordance with the rating given in Table VII, and tests should be made immediately upon going into the room from the open air.

Let the odor in the present case be *noticeable*, thus giving a rating of 97.7 per cent. perfect.

TABLE VII

Degree of odor	Percentage of perfect
None	100.0
Very faint	99.2
Faint	98.5
Noticeable	97.7
Distinct	97.0
Decided	96.2
Strong	95.5

Carbon dioxide tests are made partly for use in determining the air distribution and partly as an indication of the supply. While the volume of outside air delivered by a ventilating apparatus might be measured with an anemometer, this would take no account of the air change by natural leakage. Furthermore, it is desirable to observe the chemical

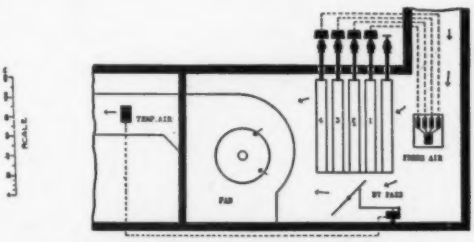

FIG. 5. DIAGRAM SHOWING A COMBINATION OF MULTIPLE AND SINGLE THERMOSTATS IN HOT-BLAST HEATING

condition of the air and to keep it within certain limits in connection with the other factors involved. The most logical method of regulating the supply, to meet this need, is by measuring the carbonic acid content. This requires a collecting bottle with special equipment for filling with air, and is easily done by any one.

The actual analysis should be made by a person ex-

TABLE VIII

Carbon dioxide parts in 10,000	Percentage of perfect	Carbon dioxide, parts in 10,000	Percentage of perfect
5	99.7	16	96.4
6	99.4	18	95.8
7	99.1	20	95.2
8	98.8	22	94.6
9	98.5	24	94.0
10	98.2	26	93.3
12	97.6	28	92.5
14	97.0	30	92.2

perienced in this kind of work, and it is recommended that the Peterson-Palmquist air analysis machine be used. The rating of the carbon dioxide content in the final result is given in Table VIII.

In taking samples, the floor area should be divided into sections of not more than 200 square feet each,

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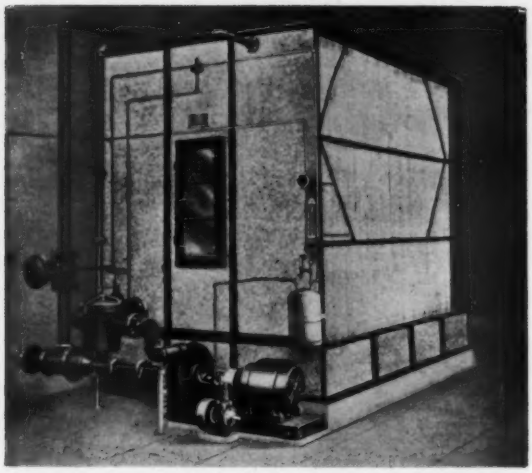

FIG. 7. A TYPICAL AIR WASHER DESIGNED FOR AUTOMATIC HUMIDITY CONTROL

and an air sample be drawn from a point between 2 and 6 feet from the floor, at the center of each section.

The method of determining the air distribution from the carbon dioxide readings is as follows, and is best explained by a practical example.

Suppose four samples are taken, with the following results:

Station	Parts of carbon dioxide in 10,000
1	7
2	9
3	10
4	6

$$\text{Average} \frac{7+9+10+6}{4} = 8 \text{ parts}$$

Variation from the average, at each station.

Station		Variation
1	8 — 7 =	1
2	9 — 8 =	1
4	8 — 6 =	2

Then the average *variation* from the average *carbonic acid content is*: $\frac{1+1+2+2}{4} = 1.5$, and the percentage of variation is $\frac{1.5 \times 100}{8} = 18.8$ per cent.

Table IX gives the percentage of perfect, as regards carbonic acid content, for different percentages of variation, as above.

Assuming the above results to be obtained in the example under consideration, we have, from Table VIII, a carbon dioxide rating of 98.8 per cent. of perfect, and from Table IX an air distribution of 94.3 per cent. of perfect. (Interpolated.)

TABLE IX

Percentage of variation of distribution	Percentage of perfect	Percentage of variation of distribution	Percentage of perfect
2	99.3	22	93.3
4	98.8	24	92.8
6	98.2	26	92.2
8	97.6	28	91.6
10	97.0	30	91.0
12	96.4	32	90.4
14	95.8	34	89.8
16	95.2	36	89.2
18	94.6	38	88.6
20	94.0	40	88.0

Tabulating the various results gives:

Factor	Percentage of perfect, per cent.
Temperature, humidity, motion	92.8
Dust	94.0
Bacteria	97.0
Odors	97.7
Carbon dioxide	98.8
Distribution	94.3

The percentage of perfect for the total ventilation of the room, taking into account all of the above factors, is determined as follows:

Percentage of the various factors	Per cent. below perfect
92.8	100 — 92.8 = 7.2
94.0	100 — 94.0 = 6.0
97.0	100 — 97.0 = 3.0
97.7	100 — 97.7 = 2.3
98.8	100 — 98.8 = 1.2
94.3	100 — 94.3 = 5.7
	Total per cent. below perfect..... 25.4

Ventilation of room, as a whole, 100 — 25.4 = 74.6 per cent. of perfect.

An examination of the above table shows the first, second and sixth items to need special attention, that is, temperature and humidity, dust, and air distribution.

Part II of this article will appear in an early issue and will refer to figures given here.

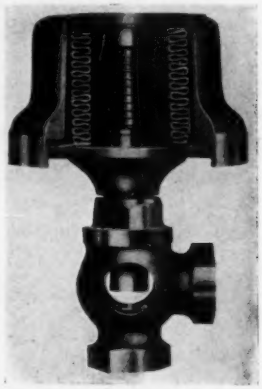

FIG. 6. PNEUMATIC VALVE OF LATEST PATTERN, SHOWING METAL BELLOWS REPLACING RUBBER DIAPHRAGM

Giving a Frame Roof a Thatched Appearance

Framing Details of Roofs with Rolled Edges

MANY interesting roofs are now produced by rolling the edges and laying the shingles in irregular wavy lines giving a unique thatched effect. While the framing of such a roof is more or less different from the usual framing it is after all simple as shown in Fig. 1.

The whole roof is given a slightly convex surface by furring on each rafter from four to six inches in height in the center of roof, and diminishing furring to nothing at ridges and eaves. At the gables, furring should be constructed with the greatest care and covered with one inch by two inch shingle strips running with the roof rafters, which carry the general convex line of roof to meet the running verge board. One inch by two inch shingle strips should also be used on valleys and hips running from eaves to ridges and on eaves running at right angle to rafters.

HOUSE AT CHAPPAQUA, WESTCHESTER CO., N. Y.
ALFRED BUSSELLE, *ARCHITECT*

The construction of furring is of the greatest importance, for with this clumsily or cheaply done, no dexterity in laying the shingles will bring successful and artistic results. At the rounding of the gables, furring should be brought well forward to the verge board and then returned against it, forming in section the arc of a circle. This rounding of the gables is greatest at the ridge and is less at the eaves.

On the main roof, when a decided softening of the gables is wanted, it is often advisable to drop the roof rafters gradually at the ridge for a distance of three or four feet back from the verge board. To be effective, the drop at verge board must necessarily be sudden. This roll at gables should be constructed with the greatest care. It has been the fault of some architects and contractors who have used the thatched roof to make the roll at gables too short.

Caution should be used in building the rounded and flat surfaces, to lay the shingle lath or roof boarding with sufficient spacing to allow for ventilation, as a roof properly ventilated will dry off more quickly after rains, and greatly increase the life of the shingles.

On the rounding of the gables, on the valleys, eaves, hips and quick turns, and the angles between the side walls of a dormer, it is necessary to use shingles which are furnished bent, as shown in Fig. 4.

On the first course at eaves, square butt shingles bent to a 20″ radius are used in double thickness, the inside of the butts to be on a plane parallel with the wall of the building. This point is the beginning of a curve, the radius of which is to be not less than 20″ to the point of merging with the roof line.

Shingles cannot be bent against the grain or crosswise, to a radius of less than 20″. Machinery and other equipment is constructed to bend to this radius, and plans must be drawn accordingly. Shingles bent with the grain or lengthwise, to be used on valleys, gables and hips, can be bent to a 10″ radius. They are flexible and can be used on almost any radius, whereas those bent against the grain or crosswise, are not as flexible.

On the rounded surfaces of the eaves it is necessary to use sixpenny nails, nailed as closely to the

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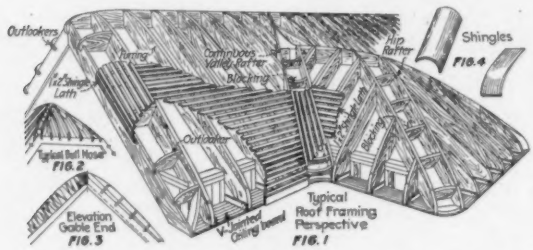
exposed part of the butt as possible. In some cases of very quick turns it is often advisable to back-saw or split shingles into narrow strips. In some cases of quick turns it may be necessary to nail the shingles through the butts. On the balance of roof the regular size shingle nails should be used, preferably of zinc, zinc-coated or copper.

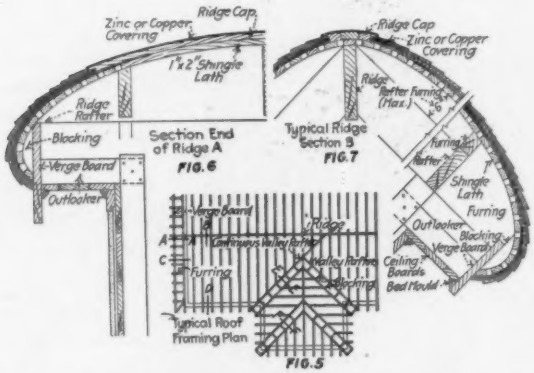


Shingle laths 1" x 2" are laid in usual manner except on Gable Ends, Hips and Valleys. On gable ends laths run parallel to rafters. On hips and valleys the laths run from eaves to ridge.

All rafters are furred from 4" to 6" at the center, diminishing to nothing at the eaves and ridge, giving the roof a slightly convex surface.

Aside from the rounding of the gables and the softening of the eaves and ridges, the best feature of this roof is the texture produced by the long, irregular waves of shingles shown in Fig. 11, the courses varying in exposure to the weather from one to five inches.

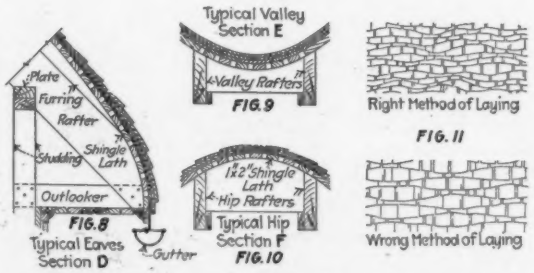
To produce these waves, shingles are sawed at the butts in a variety of special thatch patterns, and laid with the long side of each shingle to the short side of the previous one until the maximum exposure is reached. Then to bring the course down again to the minimum exposure, this procedure is reversed, i. e., the short side of each shingle is laid to the long side of the previous one. This manner of laying the shingles is carried out on each course of the entire roof surface with the exception of the first at eaves. There should be no uniformity in the courses, that is, the wave of each course should vary.



To obtain the best results for the roll of the gables the furring should project well beyond the verge board at the apex and this projection should be gradually reduced toward the eaves.

The drop from the ridge to the verge board should start three or four feet back from the face of the verge board and curve down gradually as shown in the detail above and the perspective below.

On the rounded surfaces shingles should be nailed as closely to the exposed part of the butt as possible with sixpenny nails. Where very quick turns are made shingles should be soaked in water and nailed through the butt.



The radius of the roll on the rake should never be less than 10". The blocking projects well beyond the verge at the ridge and decreases toward the eaves.

On the eaves the best effect is gained by laying the shingles from one to three inches to the weather until the flat portion of roof is reached.

The thatched effect is better gained on the flat portion of roof and gable ends by an exposure of from one to five inches to the weather with an average exposure of three inches, rather than from two to five inches with an average exposure of three and one-half inches to the weather, as is sometimes done for economical reasons.

On the rounded ridges, the shingles can be used as shown in Section *F* or they can be capped with a suitable metal (Section *B*), preferably copper, rounded to appear from below as a continuance of the shingles. Metal would be somewhat cheaper but not quite so artistic.

The construction of the gutter is shown in Fig. 8. This arrangement does not hide the rounded eaves, and when painted to match the shingles, it accentuates the droop at the eaves when seen at a distance.

Naturally it requires more shingles for a thatched roof than for a regular roof, but it is more durable as the average exposure is less.

Of Current Interest

Happenings and Comments in the Field of Architecture and the Allied Arts

The Architect's Service

Members of the architectural profession of Jacksonville, Fla., have exactly the right ideas as to their duty to their community.

In a series of advertisements, one of which is reproduced, they have laid the facts of the present building situation accurately before their clients. There can be no doubt of the value at this time of such well-directed action, and it would be well for architects all over the country to profit by so excellent an example.

The advertisement was as below:

THE ARCHITECT'S SERVICE TO HIS CLIENT

INVESTMENT COUNSEL

An owner's interest in an investment in new buildings or alterations is vitally affected by the requirements and demands of the immediate market of tenants and purchasers. The architect should be able to analyze the demands for immediate accommodation, and advise as to the prospects of immediate return, the type of occupation to be anticipated and the special demands of the immediate market. The conclusions of this statement as to the immediate gross revenue should be compared with the previous statement as to fixed and operating charges and the immediate net revenue should be determined.

Such study is part of the service of the architect to his client.

This is the Architect's Eighth Duty.
The Ninth Will Appear Next Monday.

REGISTERED ARCHITECTS OF JACKSONVILLE

A. N. COLE
H. C. DOZIER
MELLEN C. GREELEY and ROY A. BENJAMIN
J. H. W. HAWKINS
GEORGE O. HOLMES and E. A. EHMANN
RUTHLEDGE HOLMES
H. J. KLUTHO
MARK & SHEFTALL (V. Earl Mark and L. Sheftall)
MARSH & SAXELBY (W. Mulford Marsh and H. F. Saxelby)
JEFFERSON D. POWELL
W. B. TALLEY
JAMES R. WALSH

Specification Institute

An Interesting Letter from Professor Goldsmith

The proposed Specification Institute interests me immensely, not only from my present point of view as a teacher including specifications as one of my subjects, but as having written the specifications for the firm of which I was a member for seventeen years.

In my more recent studies of various specifications I have been impressed by two evident facts. Most of the writers of specifications are dealing with a subject which is irksome to them—and no man can do his best with a task which he does not enjoy. Also, many specification writers who know the technical side of architectural work, who are familiar with their materials and construction, lack the training to express themselves on paper technically, tersely and clearly. Their work is generally either verbose to the extent of confusion or brief to the extreme of inadequacy. It lacks system both in the arrangement of the subjects and in the phraseology.

Such a thing as a permanent "specification model" is not, to my mind, a possibility. But a flexible and comprehensive basis for specification writing can certainly be evolved. In the efforts of this end it is to be hoped that the proposed institute will have the benefit not only of the technically trained mind but also of the mind trained to the proper written expression of technical ideas—that is, the expression in correct, clear and terse English of the ideas it is intended to convey.

GOLDWIN GOLDSMITH.

Lawrence, Kan.

For Art in the Home

San Francisco Chronicle Retains Expert to Teach the People

In an effort to give an impetus to the Better Homes Movement, the San Francisco Chronicle has invited Ross Crane, head of the extension work of the Chicago Art Institute, to conduct a series of lecture demonstrations on the coast.

Architectural Association Elects Officers

The North Carolina Architectural Association held its annual session at Raleigh a short while ago with about 30 members in attendance. Officers elected for the next year are: Harry Barton of Greensboro, president; J. B. Lynch of Wilmington, vice-president; M. E. Boyer of Winston-Salem, secretary and treasurer.

To Help Home Builders

South Dakota Bill Provides Loans at Low Interest

South Dakota home builders will have the privilege of borrowing money from the state to finance their building operations under the provisions of a bill passed recently by the Senate and previously passed by the House.

Loans up to $4,000, running for twelve years, will be made at a rate of interest not to exceed 1½ per

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cent. above the rate paid by the state on its borrowings.

The state will obtain money for the loans by the issuance through the rural credits board of $500 bonds to the extent of $3,000,000.

McFadden Art Disposal

To Go to Philadelphia If Place Is Provided; Otherwise Will Come to New York

The art collection of John H. McFadden, cotton broker, said to be one of the most costly and magnificent collections of eighteenth-century English art in the world, is left in trust to the City of Philadelphia under the terms of his will.

The will provides that $7,500 annually be set aside for the maintenance of the collection, the only stipulation being that the Municipal Art Museum to house the paintings be completed within seven years after Mr. McFadden's death. Should the city fail to meet this requirement, the pictures go to the Metropolitan Museum of Art in New York.

The collection comprises between forty and fifty canvases, one of which is reported to have cost half a million dollars. It includes paintings by Gainsborough, Reynolds, Constable, Raeburn, Romney and other celebrated English artists.

High School Competition

Hartford Architects Invited to Submit Plans

With a decision to erect the new high school, for which an appropriation of $1,500,000 was made, at the north end site, near Keney Park, the high school plan and building commission has appointed as its professional adviser L. W. Robinson, architect, No. 42 Church Street, New Haven, to act as its adviser in the conduct of the architectural competition and to assist in making the awards. Kirkham & Parlett of Springfield and the Frank Irving Cooper corporation of Boston have accepted the invitation of the commission to submit designs in the competition, according to the program. Those who may wish to take part are requested to apply for admission upon blank forms to be obtained upon application to L. W. Robinson, adviser, high school.

For their services in submitting designs in the competition, a fee of $750 will be paid, providing that all of the mandatory requirements are met, to each of the two firms named, and to the two Hartford architects whose designs rank highest in merit. No competitor shall be allowed to submit more than one design.

The drawings in the competition must be securely wrapped, addressed to L. W. Robinson, office of the Hartford high school, and delivered by messenger at this address not later than 5 p. m. Saturday, April 30, 1921.

Architectural League Exhibition

The Architectural League of New York will hold its thirty-sixth annual exhibition in the new wing of the Metropolitan Museum of Art from April 1 to May 2. Medals of honor in architecture, painting, sculpture and landscape architecture will be awarded as usual, and a new medal for design and craftsmanship in native industrial art will be awarded this year for the first time by a committee composed of Joseph Breck, Bashford Dean, Barry Faulkner, William Laurel Harris, Henry Kent and A. A. Weinman with J. Monroe Hewlett, president of the League, chairman ex-officio.

Carnegie Institute Exhibit

The Carnegie Institute of Pittsburgh will hold its twentieth annual international exhibition of paintings during May and June. It is reported that the total number of works coming from England and Scotland is to be 10 per cent. larger this year than last, while the French representation will be numerically about the same. Belgium, Italy, Norway and Sweden will all be represented. This year, as heretofore, the international jury of selection and award will be elected by the votes of those contributing to the Institute's International Exhibitions and these votes will come from practically every art-producing country in the world. A gold, silver and bronze medal will be awarded with prizes of $1,500, $1,000 and $500, respectively.

Art Center Getting Settled

The Art Center, Inc., at last has a home of its own. The purchase of two houses at 65 and 67 East 56th St., largely through the generosity of certain leaders in social and artistic life in New York, has made the home possible. The work of transforming these two dwelling houses into a club building for the Art Alliance of America, the Society of Illustrators, the Pictorial Photographers of America and the New York Society of Craftsmen is now under way. As soon as these changes are complete a series of exhibitions will be opened which will be of interest not only to art lovers but to the business world as well. The officers of the Art Center, Inc., are: Mrs. Ripley Hitchcock, president; Charles Dana Gibson, vice-president; Col. Wade H. Hayes, treasurer; Heyworth Campbell, secretary; Walter Ehrich, Ray Greenleaf, Mrs. John Henry Hammond, Chas. E. Pellew, W. Frank Purdy, Henry L. Sparks, Charles B. Upjohn, Clarence H. White, Richard L. Marwede, assistant secretary; Dr. Charles H. Jaeger, chairman, House Committee; and William Laurel Harris, Managing Director.

Painters Hear Lecture on Color Dimensions

Giving color three dimensions, hue, value and chroma, through application of the terminology worked out by Munsell was the subject of a talk before the Rochester Art Club by President Royal B. Farnum, of Mechanics Institute. This system is intended to do away with the present method of arbitrarily giving names to colors, according to the haphazard notions of fashion experts.

The system discussed was invented by Albert H. Munsell, a Boston portrait painter, now dead.

Own Your Home

Exposition in New York Starts April 16 and Landscape Gardeners Co-operate

Representatives of the landscape gardening and floracultural industries have agreed on a program of cooperation that will provide a unique character to the coming "Own Your Home" Exposition to be held in the 22nd Regiment Armory in New York, April 16 to 30, by developing sample landscape and scenic effects within the show.

Model homes of brick, frame and concrete, erected from the prize-winning plans of the "Small House Competition," conducted under the approval of the American Institute of Architects for several months prior to the Exposition, will be completely furnished and decorated, as exhibits. Realizing the importance of the landscape treatment of the home site, it is planned to surround these model houses with the best efforts of landscape gardeners. The walls of the old Armory will be transformed by a panoramic scene; towns, villages, lakes, rivers and woodlands, tiny farms, colorful orchards and sweeping meadows will give the effect of a lovely suburb setting, an ideal setting for an ideal home.

The floor area will be divided by two main avenues along which sentinel cedars connected by evergreen hedges will lead to the center fountain, banked by dwarf pines and beds of brilliant roses and early spring bulbs. The four corners of the court will be treated as individual compositions—one natural in character, will disclose a tiny fairyland of rhododendrons, azaleas, ferns and lilies, half hiding a rock pool in which red maple, swamp cedar, dogwood and red bud will cast their reflections, and on one side of which, under a gnarled cedar, is a woodland seat covered with golden bell and sweet syringa.

Another corner, in marked contrast, will show the effect of architecture on a woodsey scene. Clipped hemlock on a straight grass panel will form a niche in which stands a piece of garden sculpture. A third corner will be devoted to evergreens, massed pine, hemlock, cedar and rhododendrons with sprays of white dogwood will back a stone seat and dwarf evergreens will add to the attractiveness of this composition.

It is expected that the landscape treatment by the nurseries, seedmen, florists, manufacturers of garden furniture and sculpture, tree surgeons and all the trades which contribute to the development of the home grounds will prove an incentive to the general public to build and beautify.

Additions to Museum

Metropolitan Shows Architectural Subjects

The pediment from the Madison Square Presbyterian Church has been erected on the Museum Library together with two pierced terra cotta medallions also formerly in that church. The Louis XVI shop front, which originally stood at No. 3 Quai Bourbon, Paris, may now be seen in the Morgan wing. And finally, the plaster model of the Roman Forum has been set up in the Gallery of Casts next to the model of the Pantheon.

Famous St. Lazare Prison Is to Be Demolished

Institution Associated With Some of Stirring Periods in French History

The famous prison of Saint Lazare, the penal institution for women situated in the heart of Paris, whose tragic and sinister history dates from the eleventh century, is to be demolished by the French government.

The ancient prison, harboring within its dark and sombre embrace the most dreary dungeons in the world, has outgrown its usefulness and will be entirely destroyed.

With its demolition will go an institution intimately connected with some of the most exciting moments of French history.

New York Rent Laws Upheld

On March 8 the constitutionality of the rent laws passed at the extraordinary session of the New York State Legislature were upheld by that State's Court of Appeals in a most sweeping decision.

The laws were passed primarily as an "emergency" measure, designed to protect tenants from exorbitant rents by vesting the judiciary with rent adjusting and fixing power, upon due hearing and process of law. The laws also carried certain clauses having to do with eviction of tenants who could not pay the increased rent asked by a landlord, desired to move, yet could not move because of lack of housing

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facilities. In such cases the law directed an appeal to the judiciary, whose decision was binding.

The four principal constitutional objections to the laws on the part of the landlords were: First, that they denied to the landlords the equal protection of the laws; second, that they deprived the landlords of property without due process of law; third, that they interfered with freedom of contract; fourth, that they impaired the obligation of contracts.

The conclusion of the decision was as follows:

"The conclusion is, in the light of present theories of the police power, that the State may regulate a business, however honest in itself, if it is or may become an instrument of widespread oppression; that the business of renting homes in the City of New York is eminently such an instrument and has therefore become subject to control by the public for the common good; that the regulation of rents and the suspension of possessory remedies so far tend to accomplish the purpose as to supervene the constitutional inhibitions relied upon to defeat the laws before us."

It is estimated that fully 100,000 tenants who were facing eviction warrants when the law became effective last September are now safe against eviction as long as they pay a fair and reasonable rent.

Efficiency Body Favors World Fair in 1926

An international exposition in 1926, the 150th anniversary of the Declaration of Independence, to be called the World's Exposition of Peace and Democracy, was proposed at the ninth annual session of the National Efficiency Society in the Hotel Astor, New York.

The exposition would attempt to trace the progress in economic, industrial and political fields that has taken place since the Centennial Exposition.

The society proposes that only those concerns be permitted to participate who could show at least three years of co-operative relations between employer, employe and the public. It is suggested that the exposition be conducted either in Washington, or in conjunction with the general exposition in Philadelphia.

Architectural Society Elects Officers

The Reading (Pa.) Architectural Society elected the following officers at a recent meeting: President, Charles H. Muhlenberg; vice president, Claude B. Mengel; secretary-treasurer, Harry Maurer; directors, Miles M. Dechant and Raymond J. Richardson.

An active part will be taken in solving any problems for the advancement of architecture in the community. Lectures, exhibitions and the discussion of public improvements will occupy the attention of the members at their monthly meetings.

Personals

Martin J. Garry and Robert A. Sheffey, is the name of the architectural firm formerly known as Martin J. Garry. Offices are located in the K. & M. Building, Bluefield, W. Va.

Richard E. Grant, landscape architect, formerly of 1007 Mercantile Library Building, Cincinnati, O., has moved to 502 St. Paul Building.

Herbert A. Kennison, architect, formerly located at 746 Builders' Exchange, Minneapolis, Minn., has moved to larger quarters at 411 Plymouth Building, that city.

Frank X. Tewes, architect, formerly associated with G. L. Lockhart, St. Paul, Minn., has opened an office for the practice of architecture at 313 Guardian Life Building.

Weekly Review of the Construction Field

With Reports of Special Correspondents in Regional Centers

The Philadelphia Plan

A Communication from the Council of Associated Building Trades to the Trades Relations and Policy Committee, Master Builders' Exchange, Philadelphia

The signing of the various agreements in the building industry is only one detail. Under present methods that is up to the individual trades and their respective employers subject to the approval of the Council of the Associated Building Trades. Good progress is being made.

But the question of rate of wages per hour is not the vital matter. Your committee, as we understand it, is to recommend constructive steps leading to a permanent stabilization of the industry as well as an immediate revival of building.

The public expects lower building costs and honest building. Builders and building trades must rise to the occasion and put their industry on an efficient basis which will induce an immediate resumption of building, so vitally needed in our city. We must all put our shoulders to the wheel.

The first step is to squeeze the water out of 1920 peak costs. Let us begin to do so along the co-operative lines suggested in our "Philadelphia Plan" presented last September to the Industrial Relations Committee of the Chamber of Commerce.

Builders at the Philadelphia Chamber of Commerce conferences in February made a point that "building costs" for 1921 should be decreased from the 1920 peak of 250 per cent. of 1914 prices to approximately 150 per cent. Or in other words, a building which cost $25,000 last year and $10,000 in 1914 should cost this year around $15,000 to $16,000.

That is our goal. We must encourage greater efficiency in management and cut out the labor waste.

There must be a fair wage for employer and wage-earner alike. Honest work must be done. We are ready to do a fair day's work for a fair day's pay. We must all work efficiently.

By greater productivity per man we may help to bring the unit costs down even lower than 50 per cent. above 1914. We are ready to carry on such a plan.

The employers should also work out some plan of eliminating the intermittent employment. So long as most building trades must figure so many working days lost per year, the compensation per hour on days actually worked must be higher than is paid by other industries.

So far, we have no assurance that 1921 will be any different in this respect. Let the Proposed "Philadelphia Plan" Committees, with unbiased management, engineering advice, study conditions, develop better methods of doing the work, eliminate waste and unnecessary costs, and take some constructive steps towards steady year round employment. The trades will gladly figure lower rates per hour if we can see, how we are going to meet our bills, educate our children, get a little pleasure out of life, and lay something by for our later years, as emphasized by Chairman Trigg. The buyer of our product cares only for the final cost and workmanship, and that his job be done within a reasonable time. It is up to us to restore his confidence in us, by stabilizing our business and causing prices which will attract new building.

Just think over what the loss of real working days mean on a building job. Days which men in continuous employment earn money. Everyone knows that regular full-time pay envelopes mean satisfied workers. A man spends more loafing than when he is WORKING. Most building trades lose from 75 to 100 working days a year. It is our duty, both employer and employee, to eliminate some of the causes of this wasted time.

If we are to secure the earnest co-operation and sincere effort for efficiency among all workers in the trades let us not reduce our present rates at this time. We cannot afford to take the heart out of men or drive them out of the industry by a wage cut when greater results and savings in total costs are possible if we all jump into the harness and pull together. Wages should not be disturbed until things are well started and conditions and engineering reports determine at what hourly rates the "Trigg standard of living" can be maintained.

Our industry has never marketed its service and workmanship along modern merchandising lines. It is up to the industry as a whole to come forth with a constructive selling program and educate the buyer and worker to the best construction, working conditions and safety to the public. Think of the romance of our business. Our men working high in the air juggling heavy materials and how seldom an accident to the public has occurred through carelessness. Many accidents to the worker have happened because of failure of employers to provide proper safeguards or scaffolds for them. Let us have a real "safety first" movement on our work, no more "penny wise pound foolish" policy when life and limb are at stake. Let the joint conferences of those actually interested in our "Philadelphia Plan" get busy. There are so many things to be done.

A sound practical program must be worked out to

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provide for greater activity and demand for our product. Build up the off peak business, the retail end needs intensive developing, the service part, too, has been untouched. After we finish the erection of the monument—time, weather and unforeseen causes hasten depreciation—let us not wait until it falls down and they come to look us up before we recommend maintenance and repair work.

Our industry does not come out with scare headlines every time they raise the price of gasoline—yet they are ranting around in the press and elsewhere along with others about high cost of building and won't build. They are biting the hand that feeds them. If they boost our industry, it creates a greater demand for their products all along the line. Yet we sit by and let them tell others in our city not to build.

In summary, the main point that we wish to make is this, that there is a great area of common interest between the employer and the employee through the reduction of the great waste of voluntary and involuntary unemployment, and in the increase of production. If we are to secure increased production and an increased standard of living, we must keep awake interest in creation, in craftsmanship, and the contribution of the worker's intelligence to management. Battle and destruction are a poor solution to this problem. The growing strength of national organizations on both sides should not be and must not be contemplated as an alignment for battle. Battle quickly loses its rules of sportsmanship and adopts the rules of barbarism. These organizations—if our society is to go forward instead of backward—should be considered as the fortunate development of influential groups through which skill and mutual consideration can be assembled for co-operation to the solution of these questions. If we could secure such co-operation, throughout all our economic groups, we should have provided a new economic system, based neither on the capitalism of Adam Smith nor upon the socialism of Karl Marx. We should have provided a third alternative that preserves individual initiative, that stimulates it through protection from denomination. We should have given a priceless gift to the twentieth century.

The Building Situation on the Pacific Coast

(*Special Correspondence to* THE AMERICAN ARCHITECT)

SEATTLE.—The unsettlement of the construction labor market is holding back what would be a fair interest in building projects on the Pacific Coast. Investors, architects and contractors are almost a unit in the statement that it will be impossible to pay carpenters $6.40 per day for eight hours, the figure nominally settled upon, and do any business this season. Jobbers are endeavoring to induce cement manufacturers to cut on their product, which is the only one now moving owing to the extensive hard-finished road building program and construction on the Pacific Coast.

Jobbers declare there is no further necessity of holding building materials at theoretical levels. Losses must be taken as gracefully as possible with replacement costs and efforts made to rouse investors.

Steel continues to show signs of weakness. Outside mills have quoted lower this week on sheets. There is a general inclination to take losses on these materials in order to hasten reconstruction, and jobbers can get concessions from the independent mills on desirable orders. Corporation prices are holding steady. Stocks are ample.

The pipe market is steady. All the jobbing houses on the coast are stocked up, and there is even a surplus of good working stock. There is no difficulty now in getting prompt acceptance and delivery even of the halves and three-quarters. The nail supply, scanty last winter, is plentiful. In practically every line jobbers have a sufficient supply on hand to meet any demand for the half year.

There is a demand for carpenters at $4 per day as against $6.40 and builders say they can see some light ahead on that basis. Should the wage scale remain as tentatively agreed upon at 25 per cent. under last year's level, it is believed that there will be no special building activity on the coast this year. The undertone is weak today, and there is more than a faint hope that an early adjustment will be made.

Lime is weak, and jobbers will be able in a few days to announce a decline. Cement manufacturers have stood against recessions, and say positively there will be no reduction this season. Eastern roofing can be laid down f. o. b. warehouses Seattle cheaper than North Coast manufacturers are quoting. There have been some recent reductions in channel iron.

Steel is working toward bottom. Fir lumber has evidently reached that point, for there have been no weaknesses excepting in spots of common dimension in 30 days. Water rates to the Atlantic seaboard are falling, and the new lower rail rates that will re-establish the parities with southern pine as far east as Pittsburgh, will go into effect April 1. The transportation problem, which menaced the fir lumber industry last August when the new emergency freight rates went into effect, will be sufficiently reduced to enable West Coast manufacturers to re-enter the

heavy consuming districts of the East, is near solution. Intercostal shipping lines have given evidence of a willingness to further reduce the water rates to New York, and eastern buyers have accordingly shown considerable interest in the outlook. On this basis, also, red cedar shingles have begun to move into New York and the entire New England territory, and their favorite brand is the perfection 18-inch shingle, which is selling to the trade here this week at $3 to $3.05 per square of four bundles.

Average prices at which leading building sizes sold at the fir mills for the eastern trade during the week were as follows: No. 2 and better vertical grain flooring, $45; No. 3, $23; five-eighths by four No. 2 and better ceiling, $20; with $12.50 for No. 3; drop siding, $21; boards and shiplap, $12.50 to $13.50; dimension, $11.50; plank and small timbers, $16.50, and large timbers, $52 to $56.

Building Conditions in Chicago and the Middle West

(*Special Correspondence to* THE AMERICAN ARCHITECT)

CHICAGO.—There is no lack of developments in the Chicago building situation these days. If it becomes quiet in one sector, it is very apt to break out in another quarter and thus force itself upon the public interest. The bulge this week affects the matter of high rentals and the efforts of the tenantry to overcome the increases by legislation, which has as its aim, a paternal supervision by the state or city. The Kessinger bill, now pending in the state legislature, would provide that the subject of fair and unfair rentals be left to a commission to be appointed under state statute which would be effective over a period of emergency, to last not longer than 1925.

That there is considerable public interest in the measure is indicated by the fact that a special train bearing more or less irate tenants went to Springfield, so that the cause of the flat-dweller might be presented with due force and effect. The papers, naturally, have been full of the fight now waging between landlord and tenant, but thus far nothing definite has come of the struggle.

Agitations of one kind or another have succeeded each other with faithful regularity, but it is now becoming dinned into the hearts and minds of the Chicago public that there is only one way out of the housing difficulty with its ensuing high rentals and that is by the path of greatly increased building activity.

Although this fact is becoming generally understood and remarked upon, the actual efforts in the direction of more building have been limited. Here and there are to be found sporadic attempts to meet the situation, but building, in general, is not taking on the spirit of activity that was fondly hoped might have been fairly manifest by this time. The trend, however, is in the direction of home building and gradual gains are being made.

As heretofore mentioned in these reviews, the Lumbermen's Association is planning an object lesson in building. S. F. D. Meffley, secretary and manager of the Association, is going to arrange for the construction of a six room house for $6,000. By co-operative effort of architects, lumbermen, builders, union labor and painters and decorators, the house is to be put up in a hurry. Two days is the outside limit for its construction and considerable publicity, via films and newspapers, is to be given the effort. The reason back of it all is to show that costs of construction are not prohibitive, which thought seems to be pretty well established in the minds of prospective builders of bungalows and small houses.

Inasmuch as it seems rather certain that much of the early building will concern residential properties, interest has centered in the effort of the carpenter's union and the lumber interests to have building restrictions so modified that frame buildings may be erected in districts formerly sacred to brick structures only. A measure to make the restrictions less rigid is now pending before the city council and is meeting with considerable opposition, some of which is coming from the architects of the city. The architects aver that any removal of present building regulations would increase the fire risk very greatly and let down the bars to a great deal of unsafe and unsatisfactory construction. A very wordy battle ensued at a council committee hearing on the subject, brick manufacturers and the lumber interests being opposed in the argument. At this time, no decision has been reached as to the final outcome of the agitation.

The argument often advanced just now that materials must come lower before building can be started on a broad scale lends special interest to approaching conventions in which the element of construction cost will unquestionably be given attention. The National Wholesale Lumber Dealers' Association will hold its twenty-ninth annual meeting here,

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March 29-30, with five hundred wholesalers in attendance. Right on the heels of this meeting will come the nineteenth annual convention of the National Lumber Manufacturers' Association, with lumber producers from all over the country in attendance. The lumber interests maintain that lumber has already taken all of the sag out of prices and that there can be no further reductions, nevertheless, the conferences may be expected to rivet public interest on building and out of it all will come a further stimulus to building—this, at any rate, is the argument advanced by local optimists.

As in previous weeks, the chief center of activity in local building is to be found in the outlying suburbs. River Forest is one of the latest suburbs to report consistent building gains. Twenty-seven houses, representing a total improvement of $750,000, are shortly to be under way, in addition to much additional home building in that suburb. Practically all construction is of the better sort, the cost of the residences ranging between $25,000 and $50,000, and all furnishing employment for architects.

Practically all the money needed to finance the construction of apartment house buildings, to cost $200,000 and upward, is promised Chicago builders at 6 per cent. and an underwriting charge that will cover the expense of distribution without profit, by S. W. Straus & Co. The suggestion is made that loaning institutions in Chicago similarly act in a movement to cut out the big commissions at present charged in connection with high interest rates.

Winnetka and Glen Ellyn are other suburbs in which building is in progress. Twenty houses are in course of construction in the former suburb. Labor is plentiful in the suburbs, and cost of construction is down to a point where construction is profitable on an investment basis.

Building permits continue to hold their gains. The March record will be very much ahead of the total for March, 1920, and considerably ahead of the February, 1921, total.

Chiefly interesting among the larger proposed structures is an invitation from The Co-operative Society of America to engineers and architects to submit rough sketches, on their own responsibility, for a $3,000,000 warehouse, to be built by the Society. It is said that a large number of architects are figuring on the proposed building.

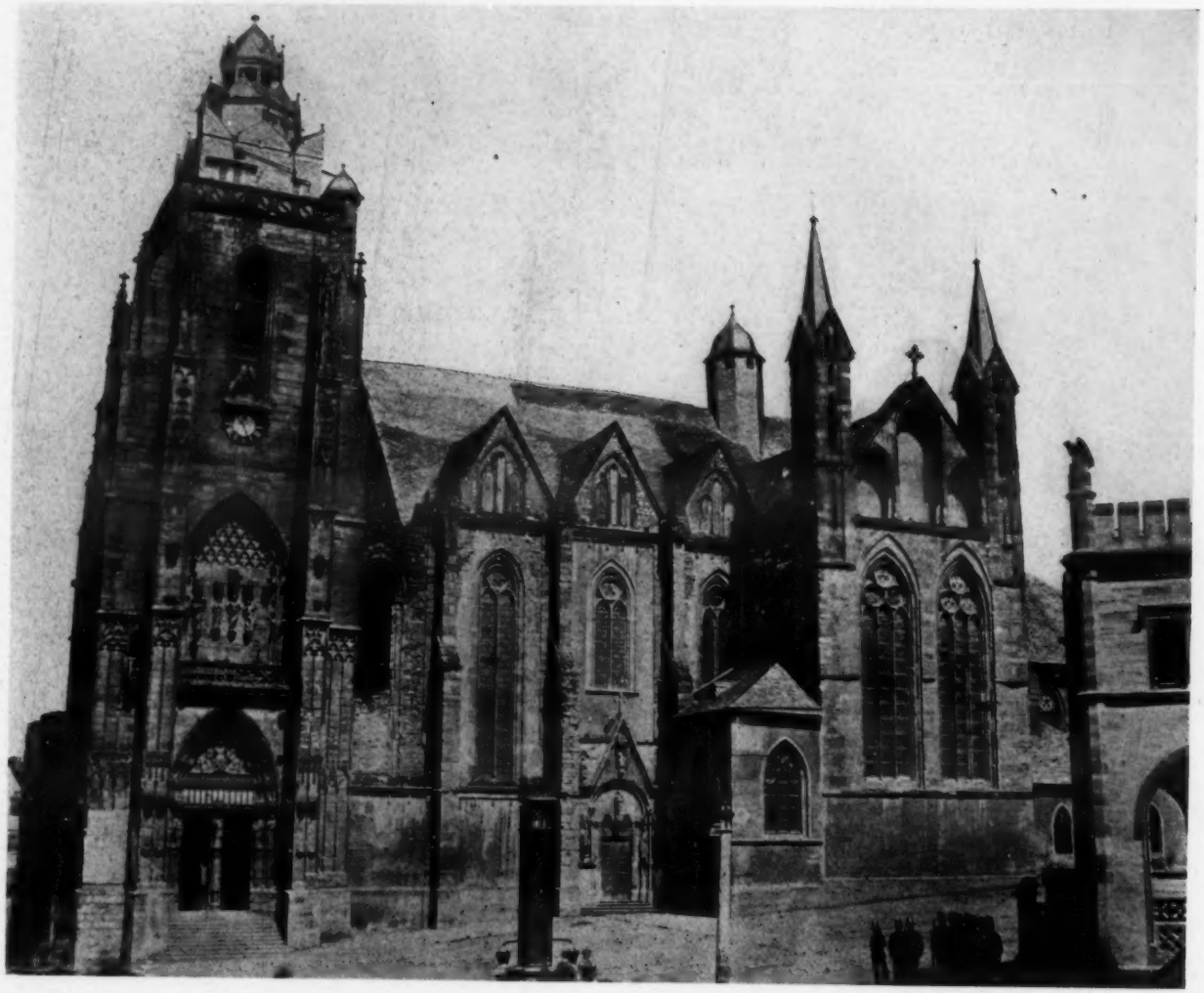
Prices in both the materials and lumber lists are practically at old levels. Strength is being shown in some materials and it is believed that any important gain in building will lead to a rapid readjustment of values, particularly in lumber.

Present quotations range as follows:

Yellow Pine: B. & B. 1-in., $95 to $130, depending on thickness; 2 x 4, No. 1, 10 to 16 ft. length, $51 to $53; 2 x 6, $48; 2 x 8, $50; 2 x 10, $53; 2 x 12, $55; 13-16 x 3¼ z & b flat flooring, $85 to $90; 1 x 6, No. 2 common, $48 to $90. *Douglas Fir*: 2 4 S, in sizes up to 12 x 12, in length up to 32 ft., $65 to $70; 14 x 14, $68 to $73; 16 x 16, $72 to $75; 18 x 18, $75 to $80. *Hard Maple*: Four, ¼ No. 1 and 2, $135; select, $120; No. 1 common, $100; No. 2 common, $65; No. 3 common, $32. *Birch:* Four ¼ No. 1 and 2, $160; select, $133 to $138; No. 1 common, $95 to $100; No. 2 common, $60 to $65; No. 3 common, $40. *Red Gum:* Four ¼ No. 1 and 2, $150; No. 1 common, $90 to $92; No. 2 common, $45.

Face Brick—Standard, vitrified red, $32.00@34.00; Smooth, Indiana red, $38.00@40; Smooth, Ohio red, $38.00@40.00; Smooth, Pennsylvania red, $46.00@48.00; Smooth, buff, $45.00@47.00; Smooth, gray, $47.00@49.00; Rough, buff, $44.00@46.00; Rough, gray, $47.00@49.00; Variegated, rough texture, $34.00@49.00.

Common brick, $13.00 to $16.00 per M. Portland cement, $2.25 per bbl. Torpedo—Lake and bank sand, $3.50 per yd. Crushed stone, gravel screenings, $3.50 per yd. Hydrated lime, Ohio, paper, $21.00 per ton. Hydrated lime, Ohio, cloth, $29.00 per ton. (Includes sacks at 30c each.) Hydrated lime, Wis. paper, $19.00 per ton. Bulk lime, $1.65 per ton.



THE CATHEDRAL, WETZLAR, GERMANY.